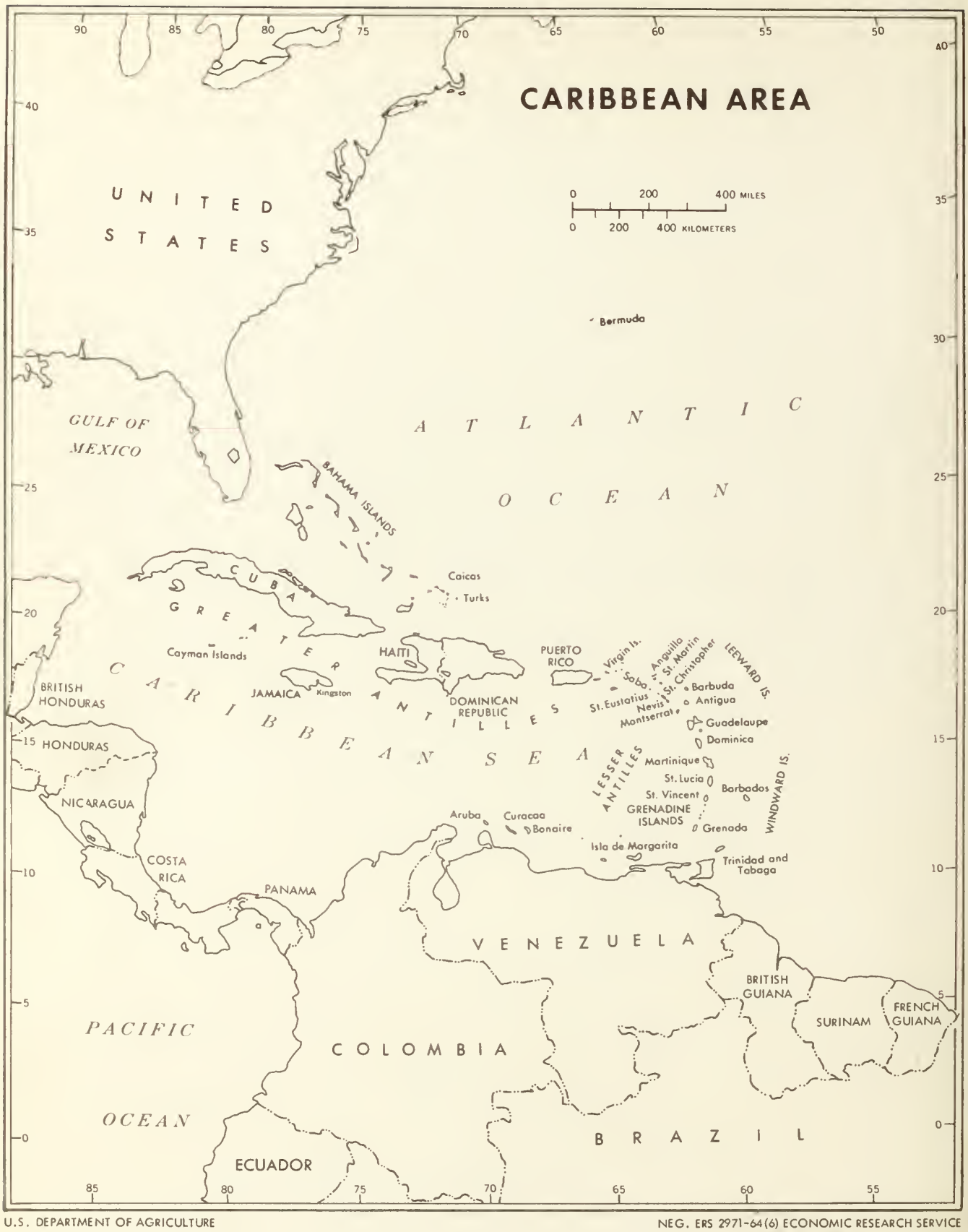
JAMAICA, TRINIDAD AND TOBAGO, LEEWARD ISLANDS, WINDWARD ISLANDS, BARBADOS, AND BRITISH GUIANA

Projected Levels of Demand, Supply, and Imports of Agricultural Products to 1975

ERS Foreign 94

FOREIGN REGIONAL ANALYSIS DIVISION ECONOMIC RESEARCH SERVICE

U.S. DEPARTMENT OF AGRICULTURE



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FOREWORD

The Study

This report is the result of a contract study between the Foreign Agricultural Service, United States Department of Agriculture, and the Institute of Social and Economic Research, University College of the West Indies, Jamaica. The contract was administered by the Western Hemisphere Branch, Regional Analysis Division, Economic Research Service of the Department.

The major objective of the study was to obtain a rational projection of the import demand of the West Indies Federation by 1965 and 1975 for specified and other agricultural products. The contract also specified four subsidiary objectives: (1) Develop long-range projections for the economy, including forecasts of gross national income, etc; (2) estimate aggregate demand for the specified products in 1965 and 1975; (3) determine the magnitude of domestic supplies of these products by 1965 and 1975; and (4) ascertain the extent of import demand for these products by 1965 and 1975 on the basis of long-term supply-and-demand relationships. Analysis was required for the following products: Wheat and wheat flour; corn; rice; other grains, such as oats and barley; sugar and its products; vegetables, including "Irish" potatoes; deciduous fruits, such as apples and pears; citrus fruit; bananas; meat, including poultry; eggs; dairy products; fats and oils; coffee; cocoa; tobacco; and cotton. In addition, other commodities were to be covered if the need was revealed as the study developed. The contract was entered into in May 1960 with the final report to be submitted in a form suitable for publication in 30 months.

At the time the study was undertaken the area covered was the newly formed West Indies Federation which was slated to become a nation within the British Commonwealth. Subsequently, the Federation disbanded with Jamaica and Trinidad and Tobago becoming independent, British Guiana scheduled for independence, and Barbados and the Windward Islands (Grenada, St. Vincent, St. Lucia and Dominica) and the Leeward Islands (Antigua, St. Kitts, Nevis, Anguilla, and Montserrat) remaining as British Dependencies.

The area under study represents a small but important and rapidly growing market for U. S. agricultural exports. Such exports totalled $20.7 million in 1958 and reached $30.5 million in 1962, an increase of nearly 50 percent. U. S. agricultural exports to the area in 1962 represented 7 percent of the total for Latin America.

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Study Report

The views expressed and the accuracy of analysis in this report are those of the Institute, and do not necessarily reflect concurrence by the United States Department of Agriculture. The published report is essentially in the form that it was submitted, editing having been done by the Department under an understanding with the Institute that only substantive changes would be submitted for their review.

The final report was received in December 1962. However, it was not accepted until December 1963 pending receipt of working papers and the required analysis on cotton. Extensive editing of the final report was required due to numerous inconsistencies, largely statistical. This problem apparently stemmed in part from the report's being largely a summary of 18 working papers by various research team members. The final report content met major and subsidiary study objectives and included required product analyses.

In editing, British spelling and style have been retained. All tonnage figures are in long tons (2,240 pounds) unless otherwise designated. Generally, in the tables, N. A. means not available and dashes are used to indicate zero. Monetary conversion rates are J£1 = U. S. $2.80, and BWI$1 = U. S. $0.583.

PROJECTED LEVELS OF DEMAND, SUPPLY, AND IMPORTS OF AGRICULTURAL PRODUCTS OF JAMAICA, TRINIDAD AND TOBAGO, LEEWARD ISLANDS, WINDWARD ISLANDS, BARBADOS, AND BRITISH GUIANA, TO 1975

Part One

INTRODUCTION AND SUMMARY

Chapter 1

INTRODUCTION

Purpose of study

The purpose of this study is to project the long term supply of and demand and import demand for agricultural commodities in the West Indies. We have made projections of demand and supply for sugar and sugar products, rice, bananas, citrus fruits, root crops, vegetables, corn and cornmeal, pulses, beef, mutton, pork, goat mutton, poultry meat, eggs, milk, fats and oils, and cotton. We have projected demand only for wheat and wheat flour, apples, pears and grapes, tinned and salted meat, tinned fruit and vegetables and cheese (which commodities are not produced in any important quantities in the West Indies) and supply only of cocoa, coffee and tobacco products for which demand is small or for which appropriate demand data were not available.

Having made separate projections of demand based on estimated income elasticities, income and population growth, and projections of supply based on expected changes in acreages and yields, we have arrived at projections of import demand and amounts available for export.

Period of study

The projections relate to the years 1965, 1970, and 1975. The base year chosen for most purposes was 1958, the year for which the most comprehensive data were available. It should be emphasised that this study does not purport to make short term projections, the techniques for which are rather different than those for long term projections.

Area covered

The area which we have covered in this study includes Jamaica; Trinidad and Tobago; the Leeward Islands (Antigua, St. Kitts-Nevis-Anguilla, and Montserrat), Windward Islands (Grenada, St. Vincent, St. Lucia, and Dominica) and Barbados; and British Guiana. At all stages of the study we have considered these as four separate territories.

When this study was started in 1960, the first three of these territories were formed into a federation. In 1961 Jamaica and then Trinidad and Tobago elected to withdraw from this federation. At the present time the Leeward Islands, Windward Islands and Barbados are endeavouring to form a federation of those islands of the British Lesser Antilles. 1/

1/ The federation had not been formed at the time this publication goes to press.

When we refer to the West Indies, we include all four territories under review. It is considered, however, that as a national unit, the West Indies is now meaningless, and although in some of our tables and charts we have aggregated the territorial data we have not made projections of main tables for the West Indies as one country. Present trends indicate that the four territories will tend to diverge more as they become independent sovereign states. These differences may influence not only importing and exporting policy but the very structure of the economy. (For instance the trend in British Guiana seems to be toward an economic and social structure different from that in Jamaica and Trinidad and Tobago.) The continued dependence of the Leeward Islands and Windward Islands on external assistance also must influence the policy and structure of the territories. As the study has continued, we have increasingly felt that an aggregation of all territories in the final results would not be very valuable and have therefore presented our information as for four separate national entities, except in the summary tables and charts.

Method of the study

Details of the methods employed are found in the relevant parts of the study and it is not intended to detail them here. We should perhaps explain briefly at this point the general approach to the study.

Part two presents an account of the projected growth of population and of income product and expenditure. The population projections were made especially for this survey but are provisional pending the results of the 1960 census. A description of the method of projecting is given in part two, chapter 1.

The national income projections in part two were made especially for this study and although for Trinidad and Tobago and Jamaica base period figures were available, these also had to be compiled for British Guiana and most of the smaller islands.

The method of projecting national income follows from that adopted in the West Indies. The method is fairly standard for the various territories, as much of the work has been coordinated in past years by the Institute of Social and Economic Research in the University of the West Indies. However, certain developments appear in this study: One is the projections themselves, since no projections have previously been completed for any of these territories; the second is the considerable use that has been made of input-output tables which have not previously been widely used in this region. We consider that these tables are not only desirable but absolutely necessary for projections, since it is only through such tables that the effects of various assumptions in the entire economy can be gauged. For Jamaica and Trinidad and Tobago, input-output estimates have been projected for the relevant years, and for British Guiana, a base year matrix and inverted matrix have been presented from which any number of different projections can be made.

The methods used in making demand projections are described in part three. In general the method has been to arrive at income elasticities by using budgeting surveys covering different income groups at one period and also by relating consumption trends in the past to income trends. Base year food budgets were available for Jamaica and Trinidad and Tobago but it was necessary to compile them for this study for the Leeward Islands, Windward Islands and Barbados, and for British Guiana. All data were expressed first on a per capita basis, and then projected income and population indicators were

applied to obtain final demand total. No previous studies of this kind had been done in the West Indies and all the data presented in part three was gathered particularly for this study.

On the supply side, studies of supply conditions for various commodities provided most of the raw material for part four. In general the method was to take into account all factors likely to influence acreages and yields, and to project total supplies on the basis of these findings. Naturally a great number of factors of an economic, technical, and physical nature were taken into consideration and our methods of treating these is explained in part four.

In reconciling demand and supply and arriving at import demand we have assumed a constant price relationship between products as a first assumption. Where a product is mainly imported or is produced for export as with sugar and citrus we have generally assumed supply to consumers will be elastic and no considerable changes in price relationships are likely. We have had to make an exception in the case of bananas, where domestic supplies tend to be a residual from exports rather than exports a residual after domestic needs have been met, and have predicted that price adjustments will follow from discrepancies between demand and supply projections. As regards commodities produced mainly for local consumption, we have also predicted price adjustments rather than importations to meet a deficiency between demand and supply, particularly for certain roots and vegetables and fresh milk.

Only for population have we presented two possible projections, but we have only used one throughout the study. It would be possible for us to present any number of projections of the important indicators based on different assumptions regarding income growth, population growth, demand changes and supply changes. We do not favour a method of presentation which proliferates the number of alternative projections and we feel that to present two projections would in most cases emphasise maxima and minima rather than the "average" or most probable course of events. Our technique has been to present one set of what we feel to be the most probable projections, at the same time discussing the modifying influences which certain different assumptions are likely to have on them and in particular we have endeavoured to present our information in such a way that, if proper mechanical equipment becomes available, alternative major assumptions can easily be fed into the base model.

One point which must be mentioned here since it had some influence on our method is that the West Indies is at the moment very much at cross roads as regards its economic future. For most territories the fast tempo of economic advance experienced in the 1950's had already slowed down by 1958 and many of the major trends of the fifties have not been continued into the sixties. This has made it almost impossible to project straight line or curvilinear trends solely from past trends. In fact the economic situation has been such as to discourage the use of purely mathematical relationships and to encourage the assimilation of empirical observations into our general conclusions, and this we cannot help but feel has been of great benefit to the study.

The importance of agriculture in the West Indies economy

The area is underdeveloped in that per capita income is low, unskilled agricultural labour is the main activity, productivity is low and capital is deficient; also some skills still have to be imported. All these conditions are, however, not of the lowest that can be found, even in the Western Hemisphere, and Table 1 (see appendix) indicates the position which the West Indies occupies in the Americas, in terms of per capita income.

These characteristics are found in all parts of the West Indies. Other characteristics, which are not common to all underdeveloped countries, are that land is a relatively scarce resource and unskilled labour a relatively plentiful one. Agriculture, although important, is not as important as in many underdeveloped countries. In 1959 the export agriculture, sugar cane growing, domestic agriculture, and livestock and fishing sectors contributed about 15 % to the gross domestic product of Jamaica (see Table 3b). In the same year the agriculture sector accounted for 12.5 % of the gross domestic product of Trinidad and Tobago (see Table 4c). In 1960 the export agriculture and other agriculture sectors contributed about 38.5 % to the gross domestic product of the Leeward Islands, Windward Islands and Barbados (see Table 5b). In British Guiana that year the agriculture and the livestock, forestry, and fishing sectors accounted for about 27.2 % of the gross domestic product (see Table 2. 5. ii). With the exception of the Leeward Islands, Windward Islands and Barbados the industries included in each sector are shown in the explanatory note for part two.

Trinidad and Tobago's main industry is oil mining (production) and refining, and in Jamaica and British Guiana, the mining industries (bauxite and alumina) contribute very considerably to the economies.

Another characteristic of this region is that although it is underdeveloped, the cash economy is advanced, and the non-market sector is smaller than in many countries of equal living standards. This sector varies, however, from territory to territory and is estimated at about 12 % of the gross domestic product in the Windward Islands and about 2 % in Trinidad and Tobago. Even in the Windward Islands it is a low proportion as compared, for instance, with countries of Africa where it may reach 65 % of the gross domestic product.

Trinidad and Tobago is the most prosperous and developed of the areas with which we are concerned (see tables to part two). Jamaica has the next highest per capita product, Barbados and British Guiana are probably comparable in terms of real income and in all these territories the price level is rather lower than that for Jamaica; finally the Leeward Islands of St. Kitts and Antigua are slightly more prosperous than Montserrat and the Windward Islands. These last territories approximate more to the accepted model of undeveloped territories.

Sugar is the most important agricultural industry in the West Indies and it has been estimated that it provides a living for about three quarters of a million people, including dependents of workers. Sugar is grown in Jamaica where it contributes 6.0 % of the gross domestic product; in Trinidad and Tobago where it contributes 3.0 %; in British Guiana where it contributes 17.0 %; in Barbados where it contributes 28 %; and in the Leeward Islands where it contributes 26 %. Cane is grown by peasants and estates but the latter account for practically all the production in British Guiana and St. Kitts.

Rice is an important product for British Guiana although it is grown in Jamaica and Trinidad and Tobago on a smaller scale. Rice is grown on farms averaging 10 to 14 acres in British Guiana and there are a large number of very small producers.

Bananas is the second most important crop to the West Indies as a whole and is grown for export in Jamaica, the Windward Islands, and Trinidad and Tobago. Although it is sometimes grown by estates it is mainly associated with peasant cultivation.

The other main export products are citrus, grown and processed in Jamaica, Trinidad and Tobago, and Dominica, although smaller quantities are exported from St. Lucia, Grenada and British Guiana; coffee, grown on a rather smaller scale in Jamaica and Trinidad and Tobago; and coconut products, exported mainly for the interterritorial trade. Spices are important in Grenada and are also of some significance in Jamaica. All these crops except coconut are produced mainly by small growers. Although estates account for a significant part of the total product and acreage, the largest number of growers is found in the smaller size groups. Sea island cotton is grown on any important scale only in St. Kitts-Nevis-Anguilla, Antigua, Montserrat and St. Vincent. It is declining in importance but is still the main crop in Montserrat and Nevis. All export agriculture, excluding sugar, accounts for 2.3 % of the gross domestic product in Jamaica, 2.2 % in Trinidad and Tobago and 9.4 % in the Leeward Islands, Windward Islands and Barbados. In British Guiana there are no important export crops other than sugar and rice, both domestic and export accounting for 4.6 % of the gross domestic product.

Great difficulties have been experienced in measuring exactly the scale of domestic food crop production in the West Indies and all figures must be treated with reserve. These crops are of course grown in all territories and are wholly peasant produced. The proportion which they contribute to the gross domestic product is approximately 4 % in Jamaica, 5 % in Trinidad and Tobago, 7 % in the Leeward Islands, Windward Islands and Barbados, and 4 % in British Guiana.

Livestock production has until recently always been mainly a peasant undertaking except for cattle ranching in British Guiana. Recently there has been a trend toward larger units, particularly in poultry and egg production and in beef production in Jamaica. The livestock population of the West Indies is fairly large, related to both human population and land area. All territories produce these products and peasant producers still predominate. The proportion contributed to the gross domestic product is approximately 1.9 % in Jamaica, 1.8 % in Trinidad and Tobago, 2.1 % in Leeward Islands, Windward Islands and Barbados and 3.2 % in British Guiana.

The above remarks indicate that although the West Indies is mainly a primary producing area, the importance of agriculture is not as great as in many countries of a similar stage of development.

External factors

As this study progressed, the external factors influencing the economic relationship between the various territories and each other and their relationship with the outside world underwent considerable changes. With the break up of the West Indies federation the plans for a customs union were immediately and indefinitely shelved. Two independent

nations, Jamaica and Trinidad and Tobago, appeared on the scene and positive steps are being made toward the independence of British Guiana and a federation of the Leeward Islands, Windward Islands and Barbados.

But inter-Caribbean trade in agricultural commodities is small and indeed is significant only for rice and coconut products. Agriculture in the West Indies is far more likely to be affected in the future by external factors, particularly the consequences of Britain joining a common market in Europe.

It was not within the scope of this study to make a detailed examination of external markets for the main export products. It has, however, become increasingly apparent that changes in the trading relationships of those countries that are main customers of the West Indies may well involve alterations in our projections, and that further study of the effect of the European Common Market should be made when the conditions of Britain's entry into this are more clearly specified.

Chapter 2

SUMMARY OF RESULTS

The long term growth of the economy

Population. Two simple projections are offered as provisional estimates pending final fertility and mortality tables from the 1960 census.

At the 1946 census the population of the West Indies territories under review was 2,776,056; in 1960, according to the census of April 1960, it was 3,669,528, an increase of 32.18 %.

The first projection was based on the fitting of an exponential function to the data for 1946 and 1960. A growth rate of 1.994 % per annum was derived. This projection gave total population figures for the West Indies as a whole of 3,669,528 in 1960, 4,054,900 in 1965, 4,480,100 in 1970 and 4,949,800 in 1975. 1/ The results by territories are shown in Table 1.2.i.

Table 1.2.i

Estimates by territories of population used in this survey, 1960 and projections

Territory	1960	1965	1970	1975
Jamaica	1,613,148	1,744,400	1,886,500	2,040,100
Trinidad and Tobago	827,957	953,290	1,097,600	1,263,800
Leeward Islands, Windward Islands and Barbados	669,654	719,610	774,010	832,130
British Guiana	558,769	646,530	774,400	858,340
Total	3,669,528	4,063,830	4,502,510	4,994,370

The first projection assumes that the rate of migration will approximate that during 1946-60; a second projection is presented which extracts from the data the influence of

1/ The small discrepancy found between these totals and those in Table 1.2.i is due to approximation in the aggregation and the territorial rates.

migration and presents figures which are based purely on natural growth rates. The results from this projection are that the population totals 3,669,528 in 1960, 4,186,850 in 1965, 4,778,300 in 1970 and 5,451,610 in 1975.

In our projections of demand we have utilised the first population projections, which estimates approximately a continuation of the present trend in population growth. The territorial breakdown of population for this projection is shown in Table 1.2.i.

Jamaica. We briefly examined the economic growth of Jamaica between 1950 and 1960 and concluded that growth had been at an unusually high rate. This high rate was mainly a result of the emergence and development of the bauxite alumina industries and is unlikely to continue. In spite of the high rate of growth in the economy as a whole, agricultural sectors showed only a moderate rate of growth in the past decade and we consider that there will be little change in growth rates of the agricultural sectors. We predict that the share of agricultural sectors will decrease from 16.3 % of the gross domestic product in 1958 to 12.3 % in 1975 (Table 3b).

The average growth rate at constant factor cost was 8.8 % per annum in real value for the period 1954-59. We are unable to predict so high a growth rate for the future but allowing also for population change we have projected a real per capita annual growth rate of 3.7 % between 1958 and 1965, 3.5 % between 1965 and 1970 and 2.8 % between 1970 and 1975. Totals of gross domestic product and national income are shown in Table 1.2.ii.

Trinidad and Tobago. In current prices the gross domestic product (GDP) increased by 156 % between 1951 and 1959. During this period agriculture declined in importance from 18.0 % of the GDP to 12.5 % of the GDP (excluding sugar manufacturing).

In Trinidad and Tobago expansion of the economy has been more dependent on investment in the oil industry than on any other single factor. Although some slowing down in this investment is predicted, it is felt that in general the economy of Trinidad and Tobago will continue to grow at rates approximating those of the past decade and a growth of 135 % is predicted between 1959 and 1975. The aggregates are shown in Table 1.2.ii.

Leeward Islands, Windward Islands and Barbados. In this territory we predict a very slightly greater rate of growth than that which we believe has prevailed in the past decade (although details are not available of past growth rates for all territories). This prediction arises partly from the fact that this territory is at a lower stage of development than other territories and partly from the result of an economic union which is expected to take place between these territories. The growth rate that we have predicted works out at about 2.8 % per annum at constant prices between 1960 and 1975. We expect a decline in the importance of agriculture from about 42 % in 1960 to about 29 % of gross domestic product in 1975. This results from the expected growth of tourism and allied services and some manufacturing mainly in Barbados. The aggregates are shown in Table 1.2.ii.

British Guiana. Although the national income (in current prices) doubled between 1950 and 1960, there was virtual stagnation in the periods 1954-55 and 1957-59, and the spectacular growth in 1956-57 and 1959-60 was due mainly to expansion in the bauxite industry. Very few new industries were introduced and the structure of the economy, with its heavy dependence on sugar and bauxite, altered little in the 1950's. Little change in economic

conditions in British Guiana is predicted and a sectoral growth of 58 % between 1960 and 1975 (at constant prices) is predicted. The importance of agriculture in the product decreases from 26.7 % in 1960 to 20.6 %. In Table 1.2.ii the aggregates are shown in total and per capita form.

Table 1.2.ii

Projected growth of the West Indies economies

Indicator and territory	1965		1970		1975	
	Total	Per capita	Total	Per capita	Total	Per capita
	Million BWI$	BWI$	Million BWI$	BWI$	Million BWI$	BWI$
Consumption by persons:						
Jamaica	1,036	595	1,319	701	1,564	763
Trinidad and Tobago	801	840	1,014	924	1,223	968
Leeward Islands, Windward Islands and Barbados	256	355	310	401	368	443
British Guiana	228	352	264	354	305	355
Total	2,321	571	2,907	646	3,460	692
National income:						
Jamaica	1,199	686	1,530	811	1,855	907
Trinidad and Tobago	988	1,436	1,251	1,141	1,499	1,186
Leeward Islands, Windward Islands and Barbados	278	386	340	440	418	503
British Guiana	285	441	328	441	377	439
Total	2,750	676	3,449	766	4,149	830
Gross domestic product at factor cost:						
Jamaica	1,365	782	1,732	917	1,910	935
Trinidad and Tobago	1,229	1,289	1,558	1,420	1,861	1,473
Leeward Islands, Windward Islands and Barbados	293	404	357	460	438	527
British Guiana	322	499	372	499	427	497
Total	3,207	789	4,019	892	4,636	928

Long term projections of demand

The final demand has been projected for the food groups cereals, sugar and sugar preparations, roots and starchy vegetables, vegetables and pulses, fruit, meat, fish, milk and milk products, eggs, oils and fats, and cotton. The average income elasticities for the various territories under consideration, viz, Jamaica; Trinidad and Tobago; the Leeward Islands, Windward Islands and Barbados; and British Guiana, have been estimated for 1958 at 0.45, 0.30, 0.45 and 0.30, respectively.

The per capita consumption of food and total demand for future years have been arrived at on the basis of projected income and population growth. The calorie consumptions per capita per day obtained from above show increases during the period 1958 to 1975, from 2,111 to 2,635 for Jamaica, 2,533 to 3,024 for Trinidad and Tobago, 2,040 to 2,445 for the Leeward Islands, Windward Islands and Barbados and 2,200 to 2,254 for British Guiana. The protein and fat contents, for Jamaica only, go up from 56 and 34 grams, respectively, in 1958 to 70 and 47 grams in 1975 (Table 8).

A summary of the results of our demand projections are shown in Table 1.2.iii.

Table 1.2.iii

Projected summary of amounts demanded, all territories

Commodity	1965	1970	1975
	Million pounds		
Cereals	963	1,112	1,273
Sugar and preparations	339	391	443
Roots and starchy vegetables	782	865	955
Vegetables and pulses	306	358	416
Fruit	856	1,096	1,269
Meat	154	185	219
Fish	159	184	208
Milk and milk products	285	341	593
Eggs	39	50	58
Oils and fats	110	128	149
Cotton	4	5	6

Long term projections of supply

Examining the economic resources of the West Indies, we found that land was likely to be the main limiting factor. All regions have a high population density except for the island of Dominica and British Guiana; although more land could be brought into use in these two places, a rugged topography and poor soils impose limits on possible development in these places where population pressure does not appear to be high.

Although there can be some substitution between products, we also noted that for many crops the type of land, site factors and climate limit the crops that can be grown. Much land which can grow bananas is too steep for sugar; much of the acreage under coconut production cannot grow other crops, and so on; so that although substitution is possible in better land, much land is most suitable for specified crops.

Although figures of acreage are unreliable, we found considerable increases since 1946 in areas under export crops, particularly sugar and bananas, for which crop output more than doubled. We found however a slowing down of the rate of increase of production after 1957, and very little growth in output of export crops after that date as compared with the earlier periods.

We show in Table 1.2.iv the projected acreage in cropland for the period under review. Actual limits in the supply of good agricultural land result in projections of a very modest size.

Table 1.2.iv

Projected acreage of cropland, by territories

Territory	1965	1970	1975
		1,000 acres	
Jamaica	681.6	683.2	685.2
Trinidad and Tobago	355.5	365.8	363.6
Leeward Islands, Windward Islands and Barbados	320.0	340.0	363.0
British Guiana	458.6	488.6	497.3
Total	1,815.7	1,877.6	1,909.1

In projecting the acreages for sugar, the trend since 1950, which was less steep than the trend since 1940, was given some weight; but for almost all other crops, particularly tree crops, planting programmes and available land were the main criteria of projecting acreage increases.

We conclude that, given the characteristics of the high population density in relation to land resources, there will be considerable pressure in the West Indies for industrialisation and urbanisation and emigration on the one hand, and for increasing yields on the other. Population pressure may tend to depress yields by the cultivation of marginal and sub-marginal land resources; but we believe that the latter will be of importance in the future period with which we are concerned. The factors which will probably be of most importance in increasing yields are better breeds of plants and livestock and reduction of disease.

Economic factors are also important, but in the West Indies one of the main cost problems, low labour productivity, is difficult to remedy. It is also probably unfortunate but true that so long as labour is plentiful and land is scarce, capital will tend to be spent rather on improving productivity per acre than per man.

As a result of our consideration of acreages and yield factors we project the total supplies of commodities. These are summarized for main commodities in Table 1.2.v.

It will be noted that the rates of growth of production are not high except possibly for cocoa; the growth rate for this product is approximately comparable to that experienced by bananas and sugar in the period 1948-60. The products for which the least expansion is predicted are root crops, sea island cotton, corn and pulses.

Reconciliation of demand and supply and import demand

The reconciliation of demand and supply figures produced data on import demand for those products that are partly locally produced and partly imported. Import demand information for commodities that are wholly imported are derived from the demand table. Import demand is shown in summary form in Table 1.2.vi.

Table 1.2.v

Projection of total production of main commodities, all territories

Commodity	Unit	1965	1970	1975
Sugar	million pounds	2,913	3,279	3,595
Bananas	do.	993	1,101	1,146
Rice	do.	471	561	607
Sea island cotton	1,000 pounds	989	739	734
Copra	1,000 tons	49	52	58
Cocoa	million pounds, dry	35	53	72
Citrus	million pounds	656	725	947
Root crops	do.	644	651	660
Vegetables	do.	182	212	234
Corn	do.	44	47	50
Pulses	do.	25	25	26
Meat	do.	87	105	122
Eggs	do.	35	44	55
Milk	do.	222	239	257

Table 1.2.vi

Projection of import demand for certain commodities including interterritorial trade, all territories

Commodity	1965	1970	1975
	Million pounds		
Rice	192	219	252
Wheat and flour	442	516	589
Copra and meal	56	67	79
Others	128	152	177
Sugar and preparations	4	5	5
Roots	157	213	295
Vegetables, fresh	46	45	75
Vegetables, tinned	13	15	17
Pulses	46	57	69
Apples, pears, grapes	8	9	11
Beef, fresh	17	21	25
Other meat, fresh	17	23	27
Meat, salted and canned	24	28	33
Milk preparations	92	106	122
Cheese	9	11	12
Eggs	3	5	3
Butter	12	15	17
Other oils and fats	11	8	9
Cotton	4	5	6

Part Two

GROWTH OF THE ECONOMIES

Chapter 1

TWO PROJECTIONS OF THE POPULATION OF THE WEST INDIES BETWEEN 1965 AND 1975

In April 1960, a population census was taken throughout the West Indies. Since fertility and mortality tables from which more scientific projections could be made are not available, we propose to offer two very simple projections as to the probable levels of the population of the West Indies between 1965 and 1975. It cannot, however, be too strongly stressed that the projections offered in this paper are at best highly provisional and are not intended to be used as more than provisional first estimates.

According to the 1946 census, the population of the West Indies in 1946 was 2,776,056. The census taken on 7th April, 1960, showed that the population of the area had increased to 3,669,528, an absolute increase of 893,472 in 14 years or an intercensal increase of 32.18 %.

The individual breakdown of these two census figures is shown in Table 2. 1. i.

Table 2. 1. i

Census population, by territories, in 1946 and 1960

Territory	Census	
	1946	1960
Barbados	192,800	232,085
Jamaica	1/ 1,295,476	1,613,148
Trinidad and Tobago	557,970	827,957
Windward Islands	251,776	314,649
Leeward Islands	102,333	122,920
British Guiana 2/	375,701	558,769
Total	2,776,056	3,669,528

1/ Estimated as at 31st March, 1946, by the Department of Statistics. Jamaica was the only one of the above territories which did not take a census in 1946. Her census taken on 4th January, 1943, recorded Jamaica's population at 1,237,063.

2/ Including Amerindians.

Between these two census years the annual end-of-year population for each of the different territories in the area has been estimated by various official sources as in Table 2a.

Comparing on an overall basis the figures in Table 2a with those given in Table 2.1.i, we notice that the 1960 census figure of 3,669,528 is less than each of the end-of-year estimates since 1957. The discrepancy between the 1957 end-of-year estimates and the 1960 census is 14,859 and by 1959 it rises to 93,942. There are several reasons for this, but perhaps the most important is the method of computing the annual end-of-year population estimates.

Briefly, they have been derived by taking the previous year's population estimate for a particular territory and adding to it the net increase due to the excess of births over deaths, and deducting or adding, as the case may be, net migration for the particular year. So the end-of-year population for any territory in 1950, say, would be computed as follows:

End-of-yr. pop. (1950) = End-of-yr. pop. (1949) + Net Incr. 1950 ± Net Migrn. 1950.

The individual estimates for each territory are then aggregated to derive the overall total for the area for that year.

This method of computing the end-of-year estimates suffers from one very obvious and basic defect. If the original base of the estimate is wrong or overestimated, as is the case for some of the territories, then the end-of-year estimates will be out. Naturally, the error becomes cumulative as we derive end-of-year estimates for any considerable period of time. It would appear, therefore, from the figures given in Table 2a that most of the territories have been consistently overestimating their end-of-year population. So if we are to avoid making the same mistake of using inflated base estimates for future years, it is necessary to strike out with some new estimates which start from a proper base. It should be noted, however, that population figures quoted for years previous to 1960 in any part of the text, are the official year end figures.

Data at present available from the 1960 census allow us to attempt only the simplest projections. We offer two projections which are based mainly on information from the 1946 census and such information from the 1960 census as is available.

Projection 1

The assumptions underlying this projection are quite simple and unsophisticated. From the figures given in Table 2.1.i we know that the population of the area increased from 2,776,056 in 1946 to 3,669,528 in 1960, an intercensal period of 14 years. If we assume that the census population of 2,776,056 in 1946 increased by some constant rate of growth which, when compounded on an annual basis, would give us the census population of 3,669,528 for 1960, then we can derive a natural exponential function of the form $y = ae^{tr}$, where a is a constant, e = 2.71828, the base of the natural log, t = 14, the number of intercensal years and r = the annual compounded rate of growth.

Substituting, we have

$$2{,}776{,}056\, e^{14r} = 3{,}669{,}528$$

$$e^{14r} = \frac{3{,}669{,}528}{2{,}776{,}056} = 1.32185$$

$$14r = \frac{\log_{10}(1.32185)}{\log_{10}(e = 2.71828)} = \frac{.12123}{.43430}$$

$$r = \frac{.12123}{6.08020} = .019938$$

which gives us an exponential rate of growth for all the territories of 1.994 %, to three decimal places, over the intercensal period 1946 to 1960.

If we further assume that this constant annual rate of growth of 1.994 % will continue up to 1975, we are able, by fitting an exponential curve to our data and extending it to 1975, to derive estimates of the population between 1965 and 1975. These estimates are shown in Table 2. 1. ii. We have also included in Table 2. 1. ii estimates of the population of the area in 1958 as this is the year on which most of our analysis is based.

Table 2. 1. ii

Estimates of the population of the West Indies, 1946, 1958, 1960, and projections. Projection 1

Year	Projection 1
1946	2,776,056
1958	3,526,600
1960	3,669,528
1965	4,054,900
1970	4,480,100
1975	4,949,800

From these figures we see that the population of the West Indies is expected to increase from 3,669,528 in 1960 to 4,054,900 in 1965, to 4,480,100 in 1970 and to 4,949,800 in 1975. This increase is derived from an average rate of growth of 1.994 %, which is not unreasonable for the area as a whole. It is also possible to derive individual growth rates for each territory.

On the same assumption that the population of each territory increased from its 1946 census to its 1960 census figure by some constant annual compounded rate, we are able to derive the individual growth rate for each territory in the same way we derived the average growth rate for the area as a whole.

Using the same equation $y = ae^{tr}$ the individual rates of growth calculated to three decimal places are shown in Table 2. 1. iii.

Table 2.1.iii

Rates of growth of the population of the West Indies, by territories, between the 1946 and 1960 censuses

Territory	Annual compounded rate of growth
	Percent
Barbados	1.325
Jamaica	1.566
Trinidad and Tobago	2.819
Windward Islands	1.592
Leeward Islands	1.309
British Guiana	2.849

Using these individual growth rates we can calculate the population for each territory between 1965 and 1975 and by aggregating the results derive an overall estimate for the area as a whole. These individual estimates are shown in Table 2b. For purposes of comparison and ease of reference we have also included in Table 2b derived estimates for each territory for the intercensal years on the basis of the growth rates shown in Table 2.1.iii.

When we calculate the individual growth rates and aggregate the results we get estimates which are in excess of those obtained from using the average growth rate. (Compare Table 2.1.ii with Table 2b.) In absolute terms this difference runs from 8,930 in 1965 to 44,570 in 1975. While this difference may appear significant when expressed in absolute terms, it is less than 1 %. This margin of error is undoubtedly due to approximations in calculation as well as the compounding of the individual growth rates and is not statistically significant enough to disturb our projections.

Another useful comparison emerges between the totals shown in Table 2a and those in Table 2b over the intercensal years. In each year the end-of-year estimates given in Table 2a exceed our derived estimates given in Table 2b. The difference in 1947 was a little over 57,000 and by 1959 it had increased to 166,300, nearly three times its original size. This difference can be taken as being indicative, but only roughly so, of the extent of overestimation in the figures given in Table 2a.

Reverting to Table 2.1.iii, the important point about this table is the different rates of growth which the various territories show. These vary from 2.849 % and 2.819 % for British Guiana and Trinidad and Tobago, respectively, to 1.325 % and 1.309 % for Barbados and the Leeward Islands, respectively.

This variation in the growth rates can be explained by the fact that Barbados and the Leeward Islands, which are traditionally noted as emigration centres, have the lowest rates of growth, whereas Trinidad and Tobago, which has consistently attracted migrants from the Windward Islands, has the highest growth rate. This is not, however, the whole story. Emigration from Barbados and the Leeward Islands has usually been to places

outside the West Indies, that is, to places which are not included in our analysis, and the people who emigrate from these islands very seldom intend to return home except after some extended duration. Hence they are, in a sense, lost to the area.

In the case of Trinidad and Tobago, migrants have always been attracted to it from the Windward Islands. They are not really lost to the area since they do not leave the West Indies. They therefore influence the differential rates of growth by shifting from one area to another. The point which emerges from this very brief treatment seems therefore to be that the different rates of growth registered in Table 2.1.iii are influenced more by migration (whether intra- or extra-West Indies) than by differences in the rate of natural increase for the various territories.

This leads us to the very important question of migration and its probable effects upon our projections. Past trends of migration are hardly the best indicator of the future pattern of migration since the factors which operated in the past may not operate in the future. Further, the amount of migration which takes place in any one year depends on such factors as job opportunities both in the losing and receiving countries, financial resources of the prospective emigrants, family commitments and social ties, to name only a few of the factors. All of these make it extremely difficult to hazard any estimates of the future levels of migration. Nevertheless it is possible within broad limits to discuss the problem of migration in general terms and in the light of present events come up with some rough estimates.

Table 2c shows the net migration from each of the individual territories between 1946 and 1960. Although some years are missing for some of the smaller territories, especially the Leeward Islands, the overall pattern is sufficiently clear cut for our purposes. In any case the available data suggest that the most that those missing years would do would be to accentuate the trend. We see that between 1946 and 1949 the West Indies were on balance net receivers of migrants, that is, arrivals exceeded departures. We notice too that this inflow of migrants quickly dried up in 1949 and gave way to a net outflow in 1950. The chief reason for the inflow between 1946 and 1949 would appear to be the return home of many West Indians after the war.

But starting in 1950 there was a definite outflow of migrants, which steadily gained momentum throughout the fifties. From over 1,000 in 1950 the stream increased to about 40,000 by 1960, if we include an estimate for those islands for which data are not available. Our present analysis does not allow us to go beyond the bare outline of the problem and consider the migration from each territory individually, but we see from Table 2c that the amount of migration from the West Indies throughout the fifties was mainly influenced by migration from Jamaica. The heavy outflow of migrants from Jamaica was directed mainly to the United Kingdom. As a matter of fact, practically the whole stream of West Indian migration in the fifties was to the United Kingdom. The stream continued unabated or rather at an accelerated rate between 1960 and 1962 when the United Kingdom Government imposed certain immigration restrictions upon Commonwealth immigrants. We do not have data to indicate the volume of migration which took place from the West Indies to the United Kingdom between 1960 and July of 1962 when "the ban" was imposed, but informed opinion seems to incline to the view that the volume was about double that in 1959. What we do know however, is that "the ban" has practically dried up the stream of emigrants from the West Indies seeking to enter the United Kingdom. So over the next

few years the volume of migrants leaving the West Indies will be considerably reduced and this will continue until alternative outlets present themselves.

Assuming that no alternative outlets for emigration present themselves to the West Indians over the next three or four years, that is between now and 1965, we can expect the volume of emigration to fall to approximately what it was in the very early fifties. If we assume further that the mounting population pressures operate to open up other countries to West Indian immigrants after 1965, and that the movement takes a few years to get into high speed, we can visualise the volume of migration at the end of the sixties and early seventies as comparable to that of the late fifties and early sixties. What we are in effect assuming is that the volume of migration in the late sixties and early seventies will be about the same as that of recent years before "the ban" was imposed. The assumptions which we make about migration in Projection 1 are therefore that the past rate of migration will on balance be about the same for the years of our projections and that the accelerated rate of recent years will repeat itself after eight to ten years when "the ban" has worked itself out and sufficient internal population pressures have been built up to necessitate another wave of migration from the West Indies.

In conclusion therefore, we see that the main factors which have determined the rate of growth of the population of the area offered in Projection 1 are (1) the rate of natural increase and (2) the volume of migration, both of which are compounded annually in our calculations. And in so far as it is possible to estimate migration, we have tried to build it into our projections by compounding its past influence. We offer Projection 1 therefore, as our estimate of the minimum expected levels of population for the area between 1965 and 1975 on the assumption that the rate of growth of the population will remain constant at 1.994 % compounded annually, and that the rate of natural increase, though increasing, will tend to be counter-balanced towards the end of our period by an accelerated rate of migration. In short, the rate of natural increase and the volume of migration will tend to offset each other at the overall rate of growth of 1.994 % compounded annually for the area. In applying population growth to income growth, we have favoured this projection. However, we present an alternative.

Projection 2

The basic assumption underlying our estimates offered in this projection is that there will be no migration out of or into the West Indies over the period of our projections. In other words, whatever increases there are in the population of the area will be due solely to the rate of natural increase or the excess of births over deaths. So whereas in Projection 1 we estimate the minimum expected levels of population of the area based on the two main variables of the rate of natural increase and the annual volume of migration, in Projection 2, Table 2.1.iv, we estimate the maximum expected level of the population on the basis of natural increase alone. Assuming, therefore, that there is no migration and that the population of each territory increases over the period of our analysis by the same average rate of natural increase as for the last ten years, we derive the estimates shown in Table 2.1.iv. In other words, we are assuming that the future rate of natural increase for each territory will be the same as its own average rate for the last decade compounded annually. In the case of the Windward Islands and the Leeward Islands, available data did not permit us to go beyond the average rate of increase for the last five years, so that whereas the rate for the larger territories is the average for the period 1950-59, that used for the Leeward Islands and the Windward Islands is for 1955-59.

Table 2. 1. iv

Estimates of population of the West Indies by territories, 1960 and projections, and average rate of natural increase 1950 through 1959. Projection 2

Territory	Average rate of natural increase 1950 through 1959	Census population 1960	Projection 2		
			1965	1970	1975
	Percent	Number	Number	Number	Number
Barbados	2.03	232,085	256,610	283,710	312,370
Jamaica	2.52	1,613,148	1,827,300	2,069,900	2,343,600
Trinidad and Tobago	2.75	827,957	948,660	1,087,200	1,245,700
Windward Islands	1/ 3.07	314,649	365,980	425,710	495,190
Leeward Islands	1/ 2.40	122,920	138,350	155,770	175,370
British Guiana	3.07	558,769	649,950	756,010	874,380
Total		3,669,528	4,186,850	4,778,300	5,451,610

1/ Average for 1955-59.

What we have in effect done is simply to apply the average 1950-59 rate of natural increase compounded annually for each territory to its 1960 census figure to get estimates of 1965 to 1975.

Comparing these estimates with those in Table 2b we see the disparity is quite substantial but we feel that the two projections offered are sufficiently indicative of the probable upper and lower limits of the population of the area to be useful for our purposes. So whereas we offer Table 2b as the minimum level, we use Table 2. 1. iv as the expected maximum level of the population of the West Indies between 1965 and 1975.

One final point which may perhaps lend cogency to our argument on migration is the inverse movement of the figures for Trinidad and Tobago. Table 2b, which takes migration into account, shows larger estimated populations for Trinidad and Tobago in 1965, 1970, and 1975 than are shown in Table 2. 1. iv, which is based on the rate of natural increase only. Thus, migration as well as the rate of natural increase, is an important factor in the growth of the population of Trinidad and Tobago.

Chapter 2

THE ECONOMIC GROWTH OF JAMAICA 1950 THROUGH 1960 AND 1965, 1970 AND 1975

Growth of the economy in recent years

Economic growth in Jamaica was phenomenal in the period 1950-60. A visiting economist in 1961 ranked Jamaica's rate of growth with the three fastest growing countries of the world. An examination of the sectoral growth pattern indicates, however, that this growth rate was due to somewhat special circumstances, and that it would be surprising if such a growth rate continued into the future. A slowing down of the growth rate would not necessarily be a symptom of decline or instability in the economy; on the contrary, it might be accompanied by a more balanced advance of all sectors and the greater diversification of the economy. The high rate of growth of the past decade was strongly associated with the rapid growth of one industry, the mining of bauxite and alumina, which grew from having no share in 1950 to having an 8 % share of the gross domestic product by 1960. Although this 8 % may not appear a particularly large share, the importance of this industry in the actual increments to growth in this period is of course much higher and direct and indirect effects of this industry's expansion probably accounted for at least 20 % of total growth of GDP at constant factor cost.

In contrast, agricultural sectors showed a relatively slow rate of growth in both constant and current prices. The share of agricultural industries in the total product fell from 27 % in 1952 to 13.5 % in 1959. However there are grounds for believing that the estimates made for agriculture may have been too high in the early period, so the decline in the importance of this industry may not have been so rapid. Within the agricultural sector, sugar and livestock showed the biggest absolute growth, but their relative importance in the economy as a whole still declined.

Besides mining, the industries which have shown the biggest increases are construction, distribution and services. The construction industry has been affected by important increases in capital formation, both public and private, including substantial increases in housebuilding. We shall consider later the relationships between capital and output on a sectoral basis. Distribution, transport and services have been influenced by the general increase in economic activity. Services have been expanded by the increasing number of tourist hotels which came into operation in this period and the increased number of visitors which has resulted in an increase in the gross domestic product from about J£1.5 million in 1952 to about J£5.7 million in 1959.

In spite of the emergence of several new manufacturing industries in this period the share of manufacturing increased only from 13.2 % of the gross domestic product to 14.2 %.

This, however, is easily explained and is evident also in other West Indian countries. The most important industries in the manufacturing sectors are still the older industries such as the manufacture of sugar, rum and molasses, and soap, oils and other products from coconuts. These industries have not increased at the same rate as have mining, distribution and services so that the increases in manufacturing of the non-staple processing industries only are rather greater than the figures indicate. There is also the fact to be taken into account that many of the new manufacturers are small industries that do not employ a large number of people in comparison with agricultural industries. Their value lies as much in their contribution to employment at the construction stage and in their contribution to self-sufficiency and diversification as in their actual contribution to the gross domestic product.

The manufacturing industries which are of most interest in the agricultural context are those which are concerned with the production of food, drink and tobacco. These industries are mainly older industries in Jamaica; the most important are sugar and rum-making, the processing of citrus and the processing of coconut products. In our input-output matrix for Jamaica, sugar is shown as one sector so that the transactions between farmers and processors are not indicated. Similarly, citrus growing and processing are part of the main export sector. In Table 3b, however, which shows the gross domestic product of Jamaica at factor cost, by industrial origin and at constant prices, we can see the relative growth rates of agriculture and food, drink and tobacco manufacturing as compared with other sectors of the economy during the period 1953-59. As will be seen from the series (Table 3b) all the agricultural sectors increased at a rather slower rate of growth than did non-agricultural sectors; and, as we would expect from this, the sector "manufacturing, food, drink and tobacco" increased relatively slowly too. This follows from the importance of sugar milling and other basic processing industries in this sector.

Export agriculture, for which the figures are fairly reliable, and which in this case includes the banana, citrus, cocoa and coffee industries and a number of minor industries, show quite severe fluctuations over the period under review. These fluctuations are also discernible in the cane series.

The figures for domestic agriculture, and livestock and fishing are less reliable. It appears that these sectors grew slightly faster than population over this period. It is possible, however, that most of this growth is attributable to the livestock industry. Given the unreliable nature of the figures, it would be rash for us to claim that there had been any marked change either way in the production of roots and vegetables on the whole, although material collated for our supply projections indicates some increase in vegetable production accompanied by a small decline in root production.

Although the government sector grew in the period 1953-59, its average annual growth rate was 6.8 % as compared with the 8.8 % for the economy as a whole (Table 3b) at constant prices. Salary increases brought the government sector's share of the gross domestic product in current prices from 6.3 % in 1952 to 7.0 % in 1959.

Projections for the Jamaica economy 1965, 1970 and 1975

Method. From what has been concluded regarding past growth rates it is evident that we could not consider a simple projection of these into the future. The period 1958-62 already gives some indication of a slowing down of the growth rate. We do not predict a

continued decline in the rate but rather a levelling off to a rate which, although considerably less than that of the 1950's, will still allow for a fairly healthy growth when measured in terms of real income per capita.

In order to obtain a full and comprehensive picture of growth factors and their effects on the economy as a whole a series of inter-industry tables have been developed (Tables 3e. i-iv). These are in respect of the years 1958 (base year), 1965, 1970 and 1975. The choice of the base year rested solely on the availability of up-to-date. It is assumed in the projections that the price level of 1958 continues. The sectoral breakdown was made with several considerations in mind: a) the type of transaction; business, government, households and rest of the world must be separate sectors since their transactions are of a different nature; b) industries mainly exporting were kept separate; c) industries having reliable information were, when possible, kept separate from those having unreliable information; and d) industries having opposite trends were not put in the same sectors when this could be avoided.

Each sector was tackled individually. Past trends were examined. Leading authorities in business, marketing boards, mining and sugar companies, and government were interviewed, and information was gathered on investment plans and on their general assessment of the future of these industries. On the basis of all these enquiries, growth rates were estimated for each sector, but these were not necessarily the same annual average growth rate over the whole period 1965-75.

There were of course some conflicting items when the material was brought together to form a matrix. To solve these, orders of determination in the economy were considered. Export sectors are considered the most autonomous, then production sectors and finally government sectors. In the case of conflict between production sectors — for instance, whether purchases of feeding stuff from the domestic agriculture sector by the livestock and fishing sector should move at the latter or former sector's projected growth rates — a decision had to be taken as to whether or not the supply-elasticity in the supplying sector is great enough to meet the expanded demand. This is of course a first approximation. It enables us to enter somewhere into the spiral of economic activity. Later adjustments could be made as better information becomes available.

According to different growth assumptions, different levels of income could be reached; but we have projected only one set of matrices. Given our actual information, given that there would be no violent changes in industrial structure, and given that there is to be no balance of payments problem or excessive foreign borrowing, income growth can only change marginally from that predicted. The export targets for bauxite and sugar may be considered too high — but this is probably the only sizable variation we can allow for, given the above assumptions. The summary inter-industry table (Table 3f) is presented as it enables rough approximations to be made on the effect of any number of alternative assumptions.

From the main tables we derive gross domestic product, national expenditure, gross national product and national income (Table 3a). We have put these on a per capita basis and have used gross national product per head as our income indicator which is applied in the total demand projections. We feel that in a country where transfer receipts such as overseas remittances are important household expenditure per head would be a more

relevant indicator. But the difference is not great in Jamaica, and by using gross national product we conform to common international practice and thus make international comparisons more valid.

Sectoral growth rate in Jamaica

The sugar estimates are based on the assumption of exports of 410,000 tons in 1965, 500,000 tons in 1970 and 590,000 in 1975 (all at 1958 prices), plus a small increase in local domestic and manufacturing use.

The rate of growth projected for the export agriculture sector averages about 3 % per annum compounded over the whole period (Table 3d).

Figures on which domestic food crops and livestock products are based were derived from various government departments and from the Sugar Manufacturers Association Livestock Research Department. Domestic food crops show a very small increase, mainly in vegetables. Fruit and roots are predicted to decline. The increase in livestock is not so fast as in the past owing to limitations in the scope for import substitution arising in beef, eggs and poultry.

Information for the mining sector was assessed after discussions with leaders in the industry. The growth rate corresponds fairly closely with estimates recently made by the Jamaica Government. It approximates to 5.2 % per annum (as compared with an annual average of 30 % in the period 1953-59).

The construction sector is closely bound up with the assumptions regarding gross domestic fixed capital formation. It will be noted (Table 3c) that our projections for gross domestic fixed capital formation are J£58.9 million (1965), J£79.2 million (1970) and J£93.5 million (1975). Net fixed capital formation approximates to J£40 million (1965), J£53 million (1970) and J£64 million (1975). If we relate total capital formation for the period 1958-65 to the increment in income for that period we obtain a capital/output ratio of approximately 3.5, $\frac{\text{(Total net capital formation 1958-64)}}{\text{(increment to income 1958-65)}}$, as compared with 3.2 in the period 1956-59. The equivalent ratio for 1965-69 is 3.0. This ratio will become larger as more capital is needed to provide an increment of say 1 % in income, if the marginal efficiency of capital declines as may well happen if our projections are achieved, by about 1970. On the whole, capital output ratios have not been a useful tool in projecting the income and capital requirements for Jamaica, since sectoral capital formation figures were not readily available and totals were affected by the peculiar conditions of the expanding bauxite industry. Where possible, data on public and private investment plans were utilised.

The manufacturing sectors were studied by means of a field survey in which questionnaires were submitted to businessmen. The growth rate in these sectors is based on the findings of the survey.

Distribution, transport and services are projected to grow in sympathy with the general growth of the productive sectors. All these, but particularly services, are also influenced by the size of the autonomously generated tourist industry. This industry's expansion was assessed partly in relation to past trends and partly in consideration of hotel investment projects.

We would expect government to become of slightly greater importance in the GDP as incomes increase; it is projected to grow from 6.6 % in 1958 to 7.3 % in 1975.

The projections shown indicate a real per capita (national income) growth rate over the whole economy of 3.7 % per annum 1958-65; 3.5 % per annum 1965-70 and 2.8% per annum 1970-75.

Our projections do not assume absolutely fixed technical coefficients. For instance, the relatively rapid increase of the public utilities sector, which includes electricity, indicates increased mechanisation of industrial processes. We do however assume that only marginal changes take place in the share of income as between profits and non-profit income. We have assumed a slight increase in household saving from 6.2 % of household income in 1958 to 7 % in 1975. We do not, however, predict any significant increase in the proportion which gross domestic fixed capital formation bears to GDP. Thus shifts from household expenditure to savings and government are only marginal.

Employment and productivity

If the national income increases from J£177,265,000 in 1958 to J£386,639,000 in 1975 this is a real increment of J£209,374,000 over the period (since figures are all on 1958 prices). If we assume a regular income earner will earn an average of J£400 per annum, this would permit 523,435 new income earners to be absorbed into the work force — given no change in the income of existing members of the work force. During this period it is estimated that approximately 480,000 people will be added to the population of which we might say 60 % or 288,000 were possible job seekers. Thus, although we have not projected growth of the economy of Jamaica at a rate comparable to the last decade, our projections do allow for modest increases in employment and income plus absorption of the new labour force resulting from population increase.

Little information is available on productivity in Jamaica and its changes. Comparisons with other countries in the production of bananas, livestock products, vegetables and coffee show an extremely low productivity of labour, but it is probable that Jamaica is about in the middle of the range of sugar producing countries in this respect. The growth of the mining industry has almost certainly changed technical coefficients in Jamaica over the past decade and job opportunities have not expanded at the same rate as income. While we can predict increases in productivity in the sugar industry consequent on further mechanisation, which may cause some unemployment, we cannot see very many material signs that productivity is increasing in agricultural and manufacturing industries. This is one of the reasons we have favoured predictions of a lower rate of growth than that which has recently prevailed, and which, while sustaining a fairly well diversified economy, does not involve greater increases in new manufacturing industries than in basic agricultural and processing industries. Obviously, radical changes in technical coefficients could lead to errors in our predictions since the distribution of income might be radically altered by such changes.

Note. Reference N. 1. 2 (Appendix II) supplied part of the information for this chapter and Tables 3a-3c.

Chapter 3

GROWTH OF THE ECONOMY OF TRINIDAD AND TOBAGO

Growth of the economy in recent years

The period 1951-59 was one of great expansion in the economy of Trinidad and Tobago. Gross domestic product at factor cost increased from $308.3 million in 1951 to $788.9 million in 1959, that is, by 156 %. The largest single contributor was the petroleum and asphalt sector, which increased from $93.5 million to $261.4 million during the period. The manufacturing and the building and construction sectors also made significant contributions to the economy.

The contributions made to the gross domestic product by the various sectors are shown in Table 2.3.i for 1951 and 1959. For income, expenditure and product data for 1951 through 1959 see Table 4a.

Table 2.3.i

Trinidad and Tobago: Gross domestic product at factor cost, 1951 and 1959 (current prices) 1/

Sector	1951		1959	
	Million BWI$	Percent	Million BWI$	Percent
Agriculture	55.6	18.0	98.3	12.5
Petroleum and asphalt	93.5	30.4	261.4	33.1
Manufacturing (including sugar and rum)	43.4	14.1	103.9	13.1
Transport and communications	10.0	3.2	25.8	3.3
Government	29.2	9.5	65.9	8.3
Public utilities	9.4	3.0	19.4	2.5
Building and construction	8.4	2.7	48.1	6.1
Ownership of dwellings	8.3	2.7	13.4	1.7
Services	50.5	16.4	152.7	19.4
Total	308.3	100.0	788.9	100.0

1/ See Reference N.1.3 (Appendix II).

Source: Data and material developed during the study and other available data.

The territory is now entering an interesting and exciting period of economic and political development. At the end of August 1962 the territory achieved independence. This event also poses serious economic problems. The greatest problem is the implications of the European Common Market to the future development of the economy and to the oil industry in particular. Another pressing problem is the future of the sugar industry when the Commonwealth Sugar Agreement expires in 1969.

On the positive side, keen interest has been shown by overseas investors, particularly in manufacturing industries and in building and construction.

It is against this background of apprehension on the one hand and sustained optimism on the other that projections for the economy of Trinidad and Tobago are being made for the period ending in 1975 (Table 4b).

Sectoral growth rate in Trinidad

a. Petroleum and asphalt

Since 1955 when the first submarine well was completed as a commercial producer, greater interest has been shown by the oil companies in submarine drilling. Indications are that this trend will continue because of the decline in the output of land wells and increasing costs in locating additional productive wells on land. The major problem of this switch from land to marine drilling might be a reduction in the labour force in this sector. Employment in petroleum and asphalt (mining and refining) decreased from 16,426 in February 1960 to 15,285 in February 1961. It must not be assumed, however, that this development was entirely responsible for the decrease in the numbers employed.

Two oil companies have recently substantially expanded their oil refineries and the total capacity of the refineries is now approximately 120 million barrels per year. Crude oil will still have to be imported to keep the plants working at capacity, but total importations will eventually decrease as production increases. It is expected that production of crude petroleum will increase at the rate of 5 % per annum.

Production of natural gas has increased from 51,742 million cubic feet in 1956 to 97,652 million cubic feet in 1960. The main users are oil refineries, but substantial quantities are sold to the Electricity Commission, the cement industry and the fertiliser plant. Plans have been formulated for distributing the gas to various parts of the island and consequently significant developments can be expected in the near future.

At present, fears are being expressed that the oil industry might suffer severely if a satisfactory arrangement cannot be made by the United Kingdom Government in the European Common Market negotiations for protection of the industry. If these fears are realised the future of the industry will be in great danger.

The growth of this sector is estimated as follows:

	1959	1965	1970	1975
Index	100	157	179	196

b. Sugar and rum

Up to 1969 the sugar industry will enjoy the benefits to be derived from the Commonwealth Sugar Agreement. However, the success of the industry after that date will depend on the following factors: (a) whether the Commonwealth Sugar Agreement continues, (b) whether the United Kingdom enters the European Common Market, and (c) whether the Island is allocated a United States quota.

In view of the uncertainties which surround the sugar industry at the present time it is not unrealistic to be somewhat pessimistic about the future of the industry.

It is not expected that production within the near future will exceed the record 1961 crop of 245,700 tons. It is, however, anticipated that local consumption will increase, both for household and manufacturing requirements.

The projections for this sector are:

	1959	1965	1970	1975
Index	100	126	134	140

c. Agriculture

The relative contribution of this sector to gross domestic product decreased from 18.0% in 1951 to 12.5% in 1959. In absolute terms, however, it increased by BWI$42.7 million during the period.

The major commodities entering the export market are cocoa, citrus and coffee. Exports during the period 1958-60 were as follows:

Commodity	1958		1959		1960	
	Q	V	Q	V	Q	V
Cocoa	18.2	12.7	15.9	10.1	15.9	8.7
Citrus 1/	23.6	1.9	N. A.	0.7	25.8	1.6
Coffee	4.5	2.0	5.4	2.4	4.1	1.3

1/ Fresh fruit only.

Source: Data and material developed during the study and other available data.

Q = million lbs. V = BWI$ million.

In spite of government subsidies to agriculture, especially for cocoa and coffee, production has not increased as rapidly as had been anticipated because adverse weather during the past five years destroyed many of the cocoa seedlings distributed to farmers. It is, however, expected that production will show an appreciable increase when the remaining new clonal plants come into bearing.

Weather likewise affected the output of the citrus. However, as a result of the citrus agreement negotiated between the West Indies citrus producing territories and the United Kingdom Government, it is confidently expected that citrus production will increase significantly during the next few years. Exports of fresh grapefruit may decline because more emphasis might be placed by the Citrus Growers Cooperative on exporting canned grapefruit segments rather than the fresh fruit. The segment plant commenced production in 1962 and it is not yet possible to determine what degree of diversification would result.

Assuming that the drought will not continue, it is expected that the output of the above products will be as follows:

Commodity	1965	1970	1975
	Million pounds		
Grapefruit	142	168	192
Oranges	46	74	84
Cocoa	21	24	30
Coffee	8	11	13

Bananas are not now a major export crop; in 1960, exports totalling 9 million pounds were valued at $0.5 million. This crop, however, has great potentialities in Tobago.

Minor export crops, such as tonca beans and rubber, are not expected to increase appreciably.

It is not expected that the acreage under sugar cane cultivation will be increased to any great extent. There will most probably be a reduction in the acreage cultivated by estates and an increase in that planted by farmers. However, the position might change if the island receives a substantial United States quota.

For further discussion of considerations influencing exports of agricultural and domestic food crops see part four of this report.

Quarrying is expected to grow to keep pace with the building programme. However, some of the limiting factors are inadequate distribution and the lack of efficient capital equipment.

The projections for this sector are as follows:

	1959	1965	1970	1975
Index	100	154	194	232

d. Manufacturing

The manufacturing sector has increased rapidly within recent years because of increased production and addition of new industries. As a result, a wide range of products are now being manufactured for local consumption and the export market. Pioneer industries have made a great contribution to this increase.

The 1957 Census of Industry revealed that the gross output of pioneer industries increased from $5.2 million in 1953 to $23.1 million in 1957. Since the 1957 census several industries, including the fertiliser industry, have been granted pioneer status, and significant increases are expected. As of December, 1961, 79 pioneer establishments were in operation.

Projections for this sector were based on expansion plans announced by some of the large firms as well as information obtained from the Industrial Development Corporation on industries applying for pioneer status. Assumptions were also made concerning increases which might be expected as a result of the growth of other sectors. The index of growth is as follows:

	1959	1965	1970	1975
Index	100	197	257	308

e. Transport and communication

The transport problem in the islands is very perplexing and within the past five years has been investigated by commissions and consultants appointed by government.

The serious defect in the system is the competition between the "route" taxis and the buses and railways (including in the public utilities sector). The latter modes of transportation annually incur a deficit. There are other contributing factors, but competition is considered to be the principal reason. Some of the remedies suggested are: (a) zoning the "route" taxis, (b) limiting the number of such taxis. It must also be stated that the increase in the number of motor vehicles (in 1960 the total motor vehicles licensed were 40,988 compared with 35,536 in 1959) poses a serious traffic problem. An early solution to the problem is necessary.

British West Indian Airways, which has recently been acquired by the government, remains in this sector as there may be changes in ownership or partnership during the period covered by the projections.

In spite of the difficulties discussed above, the transport system will continue to grow, not only to accomodate the expansion in the productive sectors but also because of continuing government activity. It will also be enhanced by the increase in population as well as its mobility.

Finally, in assessing the projections indicated below, consideration must be taken of the fact that transportation carried out on their own account by enterprises is excluded. The index of growth is as follows:

	1959	1965	1970	1975
Index	100	130	160	198

f. Building and construction

The inadequacy of private housing constitutes one of the most pressing problems facing the country. The Housing Census of 1957-58 revealed that of the 161,000 housing units in Trinidad and Tobago, 69,000 (43 %) were grossly overcrowded, that is, with four or more persons per bedroom. Included in this number were over 43,000 units (27 % of all units) in which there was no separate room for use as a bedroom.

The Housing Census also indicated that 66,700 dwelling units or 42 % of the total were neither grossly overcrowded nor of poor quality. Of the remainder, 30,900 units or 19 % of the total were in good condition, but were overcrowded. It may therefore be taken that approximately 63,000 units were in poor condition; that is, they needed to be pulled down and replaced. There was a great deal more overcrowding in "poor" than in "good and fair" units, 60 % of the "poor" units being overcrowded as compared with only 32 % of the "good and fair" units.

It has been estimated that a minimum of about 7,000 units are required annually to take care of population growth within the country, but the annual net addition to the stock of housing is only of the order of 2,000 units.

The government, in order to alleviate the position, is directly engaged in developing housing schemes and also assists in construction projects, as for instance through aided self help schemes. In addition, various concessions have been offered by the government to enterprises willing to embark upon the construction of houses.

In making projections for this sector, the acute housing shortage has been taken into consideration. Construction work done by the sector (excluding construction carried out by government labour and by enterprises on their own account) is expected to be as follows:

	1959	1965	1970	1975
	Million BWI$			
Total	79.2	145.7	194.2	236.9
Households	19.4	37.5	51.2	75.7
Government	15.8	50.9	68.1	64.8

It must, however, be borne in mind that receipts from government are not exclusively used for the construction of housing.

The increased activity in the other sectors is likewise reflected in this sector:

	1959	1965	1970	1975
Index	100	184	245	299

g. Public utilities

The main source for the projections of electricity were the report on "A Commercial Approach to Rural Electrification" and "Tobago — Review of Past Operations Together With Projections Until 1972." Varying rates of growth were assumed for the several consumers; however, domestic consumption and consumption by manufacturing industries predominate.

The overall rate of growth for electricity to be generated was taken at approximately 13 % per annum.

Projections for Port Services relied heavily on the Hedden Report on Port Administration and Development, which made several recommendations for the reorganization and development of the port. It is expected that as a result of this reorganization Port Services will become self-supporting. In 1959 it incurred a deficit of BWI$2.6 million.

It was assumed that the railways will continue to run at a loss.

h. Government

When this study was being undertaken the government's new Development Programme (1963-67) had not yet been finalised. Consequently many assumptions had to be made about the level of government expenditure and the allocation of such expenditure.

As it is the government's policy to make a serious attack on the problem of unemployment, it can safely be assumed that expenditure under the new programme will be not less than that of the previous one. The second assumption which had to be made was that government's expenditure must increase to maintain the results of the last programme, such as maintenance of roads, education and social services generally.

It is believed that the emphasis of the new programme will be on building and construction. The reasons are (1) that this will alleviate the serious housing shortage, and (2) that this type of expenditure will generate employment principally in the manufacturing and household sectors and thus will have an impact on other sectors.

In line with the foregoing assumptions, the index of government's expenditure will be as follows:

	1959	1965	1970	1975
Index	100	195	251	303

In order to achieve these goals, government will have to resort to some of the following sources for revenue: (1) increased taxation, (2) expenditure from surplus balances, and (3) borrowing. However, if government goes through with its plan for a 50-50 share of the oil companies' profits (negotiations are now taking place between government and the oil companies) there will be a substantial increase in government revenue.

The economy 1959-75

Table 4c shows that the gross domestic product at factor cost will increase from BWI$ 788.9 million in 1959 to BWI$ 1,861.4 million in 1975, an increase of 136 %. If we examine the growth in three stages, it will be noticed that the period 1959-65 is one of great expansion and then there is a decline in the annual rate of growth:

1959-65 increase of 65 %
1965-70 increase of 27 %
1970-75 increase of 19 %

The oil companies have not yet announced whether they will undertake large-scale development during the period 1965-75, but if they do the previous rate of growth might be maintained.

Method

The inter-industry table for 1959 (Table 4d. i) was constructed from the Trinidad National Accounts worksheets. (See Tables 4d. ii, 4d. iii, and 4d. iv for projected years.) The published National Income Report 1/ follows the U. N. system, but the worksheets contain sector accounts and hence there was no problem in constructing the basic table. The accounts, however, include capital as well as current expenditure and it was not possible in all cases to allocate the capital expenditure to the various sectors. It was therefore decided to construct the inter-industry table on the same basis as the U. S. A. and Dutch models. An attempt was made to construct a capital input/output table but this was discarded because of the above-mentioned difficulties.

The worksheets existing at the time dictated the number of sectors to be selected. The major sectors, such as petroleum and asphalt, sugar and rum, manufacturing and building and construction are reliable. The components of the services sector vary in reliability and it was not possible to construct a distribution sector from the information available. The sector accounts are now being expanded and it will be possible in the near future to construct an 18-sector matrix.

Besides the production sectors described above, two other sectors require some description. The profit appropriation sector shows on the receipts side the inflow of gross profit. On the payments side the main outlays are (a) payments to government for company taxes; (b) payments to households as distributed profit; (c) payments to the rest of the world for the distributed profits of expatriate firms; and (d) payments to the savings and investment account for undistributed profits.

The capital account shows the financing of capital formation. It includes also a residual item representing capital inflows and savings of locally owned corporations. A large proportion of the capital inflows would be the reinvested profits of the oil industry.

1/ Reference N 1. 3, Appendix II.

Constant price estimates (1951 prices) exist but only for the expenditure side of the gross domestic product. The data in Table 4d. i to iv are at 1959 prices but it was not possible on all occasions to eliminate the price element. A great deal of information is collected annually (for example, growers' and retail prices, wage rates, export and import prices); consequently, it is not felt that the errors involved in eliminating the monetary movements are large.

Chapter 4

GROWTH OF THE ECONOMY OF THE LEEWARD ISLANDS, WINDWARD ISLANDS AND BARBADOS 1/

Growth of the economy in recent years

Source information is rather scant for this region, so we have presented two main tables only. Table 5a gives a summary of the gross domestic product, national income and national product for the whole region for the years 1959, 1965, 1970 and 1975. Table 5b shows the industrial origin of gross domestic product on an island basis.

The rate of growth predicted for these territories works out at approximately 2.8 % per annum throughout the period. In spite of the fact that both sugar and bananas must be projected at a declining growth rate (see part four) we do not predict a declining growth rate for this region as a whole, for the following reasons.

The smaller islands have not experienced a growth rate comparable with that of Jamaica and Trinidad and Tobago during the past decade although most territories have shown positive growth in terms of per capita real income. They are, however, at present experiencing a lower per capita income than the larger islands and for that reason may be capable of higher rates of growth in the future. We believe also that political uncertainties caused by the breaking up of the larger federation and the difficulties of forming the smaller federation have tended to inhibit growth. If the smaller federation materialises, it should do much to increase stability and to encourage investment. Our projections are based on limited agricultural expansion and on a rather greater expansion in tourism and secondary industries and in distribution, commerce and transport and other service industries.

Table 5b is intended to provide a picture of growth by sectors and territories and can best be used to illustrate a description of the individual economies and the projections for the future.

Future growth in Barbados

Barbados is the most important of these economies, having in 1960 approximately one-third of the population of the group and rather more than one third of the national income

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1/ Some source material for data in this chapter and Tables 5a and 5b can be found in References N 1. 4, N 1. 5, and N 1. 6, Appendix II.

of the group. Barbados has, besides a very important sugar industry (see part four), a number of manufacturing industries and a growing tourist industry, it being estimated that tourists now spend there about BWI$15 million annually.

The Barbados economy showed little growth in the period 1955-60 and our projections after 1965 are rather more optimistic than experience of past periods might suggest. We believe, however, that the period 1955-60 has been an unlucky one for the sugar industry in that climatic and other factors have been against expansion. The basis of our projections for sugar are explained elsewhere. Yield increases in Barbados in the forthcoming period are expected to play an important part. Even so, we cannot predict, with the very limited availability of land in Barbados, that expansion of sugar will be a major factor in future growth.

In Table 5b it will be noted that importance is given to the expansion of the manufacturing and mining, construction, distribution, commerce and transport, services, and government sectors. We base the expansion of these sectors on two main assumptions. First, if Barbados becomes the seat of a new federal government for the area, we consider that this in itself will lead to the expansion of the construction and government sectors. If the federation is accompanied by a customs union as has been assumed we believe that Barbados will obtain a number of manufacturing industries catering for the enlarged market and will also benefit from increased distributive and warehouse activities. The second assumption is that there will be a very considerable expansion of the tourist industry throughout the region and that, in Barbados, the services, distribution, commerce and transport sectors in particular will benefit from this.

If the proposed federation of the Leeward Islands, the Windward Islands and Barbados materialises we should therefore expect very considerable effects on all the economies but in particular on the economy of Barbados. We should not, however, expect the influence on Barbados to be very spectacular by 1965 and up to that year we have projected a rate of growth (Table 5b) that is not significantly greater than that demonstrated during the period 1958-62 when Barbados experienced a growth rate, in terms of real per capita income of only about 1 % per annum. After that period we expect that, unlike Jamaica and Trinidad and Tobago, Barbados will have an increasing rate of growth.

The Leeward Islands are still mainly dependent on sugar, although in recent years tourism has become a very important industry in Antigua. In Table 5b it will be noted that sugar (the main commodity of export agriculture) is expected to increase somewhat from 1960 (which was a relatively poor year) but is not expected to register very significant increases either in St. Kitts or Antigua after that. The other important crop in export agriculture in the Leeward Islands is cotton but, as is explained in chapter 4, no brilliant future is predicted for that crop.

Antigua experienced during the period 1955-1960 the fastest growth rate of any of the smaller islands. The cause of this was the emergence of an important tourist industry; during this period the number of visitors increased from approximately 3,000 in 1955 to about 20,000 in 1960, and in 1960 it was estimated that visitors spent about BWI$ 5 million in the island. By now the contribution of tourism, in terms of foreign currencies earned, exceeds that of sugar in this island. Sugar, however, still contributes somewhat more to local incomes, owing to the high import content of tourist expenditures. Secondary

industries in the Leeward Islands have been insignificant to date (if we include sugar milling as part of the primary sector) but a number have been discussed, and although we cannot make any firm predictions we have assumed some developments in industry both in Antigua and St. Kitts-Nevis-Anguilla.

Montserrat, the third of the Leeward Islands administrations, has been a declining economy consequent on the falling off of the sea island cotton industry and due also to the heavy migration of people of working age. A small number of export bananas are grown there, but are taken to Dominica for reshipment as they are not sufficient to justify a ship calling there. In 1960, a plant was opened for making tomato paste and this has greatly stimulated the cultivation of tomatoes, for which Montserrat is noted; but as these have generally found a good market as fresh fruit, the plant has been undersupplied. Generally speaking one can predict little likelihood of cure for the economic malaise which appears to have overcome this island, so long as migration continues, as it no doubt will continue if better work opportunities are not forthcoming. Montserrat has a high livestock population and it may well be that, given a small work force, it is in such products that her best chances lie.

It will be noted in Table 5b that in the Leeward Islands we predict the biggest increases in the sectors of distribution, commerce and transport, services, and construction. This is because we predict a continuation of tourist development in Antigua, and its likely extension to St. Kitts, Nevis and Anguilla, all of which have considerable unutilised beach resources.

Future growth in the Windward Islands

In the Windward Islands much the same pattern can be seen, except that the main export crop, bananas, is capable of gaining a rather greater expansion in acreage than sugar in the Leeward Islands. This is particularly so in Dominica and St. Lucia (for description of factors affecting supplies of bananas see part four). The Windward Islands have a much more important domestic subsistence economy than have Barbados, Antigua or St. Kitts-Nevis-Anguilla and are exporters of these products to other territories of the group and also to Trinidad and Tobago. As noted elsewhere, it is believed that production of domestic food crops has been reduced by migration and also by competition from banana production. In spite of the probability that these trends will continue we consider there will be a small growth in the non-export agricultural sectors; this prediction is based on the belief that if the federation of the Leeward Islands, the Windward Islands and Barbados comes into being and there is a customs union, the food producing areas will to some extent complement the sugar producing and more urbanised areas, and the expansion of domestic supplies might even reduce imports of such products as meat and dairy products. This pattern of change has already made some headway in Jamaica.

After bananas, cocoa is one of the main exports of this region and, as is explained in part four, a fairly rapid expansion is predicted for this crop. In Grenada, spices such as nutmeg and mace are important exports. Some expansion is predicted for these products but it is probably limited by the fact that they tend to grow best under a fairly intensive type of peasant cultivation and suffer competition from such crops as bananas and cocoa, which may not be more profitable than spices but have more stable prices in world markets.

In the islands of Grenada, St. Vincent and St. Lucia, we have predicted some increase in tourism. St. Lucia appears to offer the most promise for this industry, but Grenada is probably the most advanced at the moment and there are already several tourist type hotels there. The Grenadines, a small string of islands between Grenada and St. Vincent, offer almost unlimited tourist potential and some developments may well occur there during the period with which we are concerned. One of the limiting factors in the Windward Islands has been inferior airports and air services. Both Barbados and Antigua have international airports, and it is easy to see that tourism in both islands has benefited from this. Dominica is an island of rugged grandeur, but owing to the lack of beaches and areas suitable for water sports, it appears that tourism will develop there on a rather more limited scale than in the other three Windward islands.

Conclusion

Our projections for all these islands are thus based on the assumption that the federation of the Leeward Islands, the Windward Islands and Barbados will materialise. 2/ Following this we expect a small expansion in domestic agriculture and a rather greater expansion in domestic industries and services. We except services and construction in particular to be affected by a predicted expansion of tourism. Regarding the export sectors, we find that in the Windward Islands there is some scope for developing more bananas, cocoa, and probably other fruit crops; at the moment they probably have more unexploited resources than other West Indian islands. We do not expect a very spectacular increase in the export sectors of those islands that specialise in sugar production.

The predicted growth of the respective economies, which serves to illustrate the points made above, is shown in Table 2.4.i.

Table 2.4.i

Leeward Islands, Windward Islands, and Barbados: Predicted growth indicators, 1960 base, 1965, 1970, and 1975

Area	1960	1965	1970	1975
	Indices			
Barbados	100	116	147	201
Antigua	100	138	162	174
St. Kitts-Nevis-Anguilla	100	131	157	175
Montserrat	100	111	115	118
Grenada	100	122	151	174
St. Lucia	100	129	152	181
St. Vincent	100	121	139	166
Dominica	100	123	135	151
The Leeward Islands, the Windward Islands and Barbados	100	122	149	183

2/ There appears to be some likelihood that Grenada will join in a unitary state with Trinidad and Tobago. For the present we have included Grenada with the other smaller islands.

Chapter 5

LONG-TERM ECONOMIC GROWTH OF BRITISH GUIANA

Growth of investment, 1950-60

The post-war development in British Guiana began with financial assistance under the Colonial Development and Welfare Act of 1945. With the help of Colonial Development and Welfare Act grants and loans, the government of British Guiana embarked upon development planning. A 10-year Development Plan for 1947-56 (Ref. N. 1. 9, Appendix II) was drawn up in 1947 and revised comprehensively in 1950 providing for an expenditure of BWI$ 28 million. It petered out in 1953, and the government launched a 2-year programme for 1954-55, with a planned expenditure of BWI$ 44 million. This was to be the forerunner of a long-term programme based on recommendations of the International Bank for Reconstruction and Development Mission (Ref. N. 1. 10). However, during 1944-45 only BWI$ 26 million could be spent. The long-term programme was then formulated for 1956-60, and later revised to 1956-59, at a total expenditure of BWI$ 91 million (later revised to BWI$ 103 million), of which only BWI$ 77.5 million was spent till the end of 1959 (Ref. N. 1. 11). Finally there is the Development Programme 1960-64, based on the Berrill Report (Ref. N. 1. 12) at the total cost of BWI$ 110 million. All these development plans are oriented towards laying basic services, viz., sea defences, drainage and irrigation, roads and other means of transportation and communication which are essential to economic development. Programmes for geological surveys, research and experimentation for diversification of agriculture, extension of available credit facilities and some social welfare have also been undertaken.

Apart from agriculture, where drainage and irrigation schemes provided expansion facilities, all other producing activities have been left to the private enterprise to develop. To attract entrepreneurs the government has been giving since 1951 considerable income tax and import duty concessions, e. g., tax-holiday for five years from the date of production, generous depreciation allowances, duty-free imports of machinery, building materials, etc. for factories, hotels and so on. British Guiana is, however, very much dependent on foreign private capital. In the absence of a money market in British Guiana, all of the local savings cannot be aggregated for fruitful investments, and the tendency of the local people is to invest their small savings abroad.

Table 2. 5. i shows the gross fixed capital formation in British Guiana during 1950-60.

The government development fund was established in 1954, therefore comparable figures for earlier years are not available. The large amounts of private overseas capital invested in 1951 and 1957-59 are mainly due to expansion of the mining industry, especially for bauxite, and in recent years for alumina.

Table 2.5.i

British Guiana: Gross fixed capital formation, 1950 through 1960 (current prices)

Year	Total gross fixed capital	Private overseas capital	Government development fund expenditure
		BWI$ 1,000	
1950	27,400	8,600	—
1951	30,100	18,600	—
1952	25,856	6,541	—
1953	26,871	5,028	—
1954	36,116	6,865	8,608
1955	45,458	5,267	17,522
1956	48,000	6,753	20,559
1957	61,490	29,917	18,310
1958	60,865	16,179	19,881
1959	59,066	22,065	18,998
1960	77,895	N. A.	15,801

Source: Data and material developed during the study and other available data.

Growth of income, product and expenditure, 1950-60

Although the national income (at current prices) of British Guiana in 1960 was double that of 1950, there was virtual stagnation during the periods 1954-55 and 1957-59. From the table of income, expenditure and product (Table 6a) it may be seen that even though the gross fixed capital formation has shown a substantial increase from 1954 onwards, due to large increases in imports of capital goods and net factor payments abroad as the returns of the invested overseas capital, the national income has not shown any appreciable increase. The spectacular leaps of the economy between 1956 and 1957 and between 1959 and 1960 have largely been due to expansion of the bauxite industry. On the other hand, the poor agricultural crops in 1954-55 and 1957-58 and the fall in world prices of bauxite during 1958-59 caused the stagnation in those years. The economy is also very heavily oriented to foreign trade. The exports mainly consist of food and crude materials, rice, sugar, bauxite and forest products. The major imports are manufactured goods and machinery and transport equipment closely followed by miscellaneous manufactured articles, food and animal feeds. An examination of detailed foreign trade statistics clearly reveals the basic characteristics of a poor, underdeveloped and imbalanced economy, i. e. importation of all manufactured and processed goods in exchange for agricultural products and raw materials. British Guiana has, however, enjoyed in the past fairly favourable terms of trade because of guaranteed markets in rice and sugar and large demands for bauxite and forest products, and this has sustained the economy to a large extent.

Very few new economic enterprises were introduced in British Guiana during the 50's, except for beer, margarine and boat building, and the percentage distribution of GDP at

factor cost by industrial origin (Table 2. 5. ii) shows that the structure of the economy did not change in any appreciable manner between 1952 and 1960, except for the growing importance of the engineering and the building and construction sectors.

Table 2. 5. ii

British Guiana: Gross domestic product at factor cost by industrial origin, 1952, 1956 and 1960

Sector	1952	1956	1960
	Percent		
Agriculture	24.46	18.18	19.60
Livestock, forestry and fishing	7.97	7.13	7.65
Mining	8.62	11.30	8.57
Food processing	10.86	8.04	7.68
Chemicals (incl. other manufacturing and fuel and power)	3.80	3.16	3.39
Engineering (incl. building and construction)	6.23	10.32	11.24
Distribution	13.04	14.64	14.56
Transport and communications	6.17	6.58	7.03
Banking and insurance	2.45	1.93	3.11
Professions and personal services	2.33	2.84	6.06
Rent of dwelling	3.83	2.63	1.28
Government	10.24	13.25	9.83
Total	100.00	100.00	100.00

Source: Data and material developed during the study and other available data.

The major components in the producing sectors of the British Guiana economy are sugar (cane production and milling), mining, rice (cultivation and milling) and forestry. These activities are growing apace with the expanding economy. But other industries, viz, fishery and all manufacturing activities, are still in their early stages and thus have little impact on the whole economy.

Since it is not possible to measure the real national product of British Guiana due to lack of proper price indices, a comparison of household net income (personal current expenditure plus savings) at constant prices might throw some light on the real growth of the economy. The figures for per capita household net income (Table 2. 5. iii) show that, because of increases in prices and population, the almost doubled total household net income from 1950 to 1960 does not mean any appreciable increase in economic well-being of the people.

The economy of British Guiana has had some very severe drawbacks: (1) capital resources are invested in primary industries of rice, sugar, forestry and mining, whereas manufacturing industries are grossly neglected, (2) the proportion of land and labour

Table 2.5.iii

British Guiana: Per capita household net income 1948 through 1960 (at 1959 prices)

Year	Household consumption expenditure (current price)	Household savings (current price)	Household net income (current price)	Cost of living index (1959 = 100)	Household net income (at 1959 price)	Population (including Amerindians)	Per capita net income (at 1959 prices)
	BWI$1,000	BWI$1,000	BWI$1,000		BWI$1,000	Number	BWI dollars
1948	87,300	4,800	92,100	66.1	139,334	406,045	343
1949	96,400	4,400	100,800	69.3	145,455	417,736	348
1950	108,100	4,500	112,600	75.2	149,734	428,005	350
1951	120,200	6,400	126,600	81.2	155,911	439,871	354
1952	129,987	7,380	137,367	89.6	153,311	452,643	339
1953	136,087	14,316	150,403	89.9	167,300	465,420	359
1954	143,692	21,993	165,685	92.6	178,925	479,024	374
1955	146,222	14,246	160,468	95.3	168,382	493,069	341
1956	158,493	16,541	175,034	97.0	180,447	507,408	356
1957	167,395	14,091	181,486	98.4	184,437	523,497	352
1958	172,119	12,233	184,352	98.3	187,540	540,718	347
1959	178,186	16,777	188,963	100.0	188,963	559,074	338
1960	191,770	21,902	213,672	100.3	213,033	574,578	371

Sources:

1. Household Net Income: 1948-51: Percival and D'Andrade; Personal expenditure + savings.
   1952-56: O'Loughlin; Consumption expenditure + savings.
   1957-60: Kundu; Consumption expenditure + savings.
2. Cost of Living Index: 1948-56: Annual Report of Dept. of Labour; Georgetown working class cost of living indices (base 1938 = 100) adjusted to British Guiana consumer price index (base 1956 = 100).
   1956-60: Quarterly Statistical Digest, Statistical Bureau, British Guiana; British Guiana consumer price index (base 1956 = 100).
   1948-60: Data finally adjusted to base 1959 = 100.
3. Population (end year): Natural increase of Amerindians and other population and migration data, 1946-54; Annual Reports of Registrar General, British Guiana.
   Population, Amerindians, 1957-60, British Guiana, 1957-60, Colonial Annual Reports.
   Population, others and migration 1955-60, Quarterly Statistical Digest, Statistical Bureau, British Guiana.
   1948-60 data obtained by adjusting 1957-60 Amerindian and other population figures with the help of natural increase and migration data. A check with 1946 and 1960 census figures has shown an excellent fit; in fact the error is within a few hundreds of census figures.

employed for national output is rather small, as most of the economic activities are concentrated on coastal land and unemployment is about 18 % of the total labour force, (3) public overhead capital investment is very high, due to the necessity of maintaining and building sea defences, roads, and drainage and irrigation systems, (4) credit facilities are inadequate and expensive for small entrepreneurs, and (5) government's social welfare expenditure, mainly in medical and educational facilities, is too little due to inadequate revenue receipts, partly because of the tax-holiday granted to new enterprises. Hence, unless government and private enterprise co-operate in an all out effort for rapid economic growth, it is very difficult to see how British Guiana can break away from her virtual economic stagnation. But the recent political strife in the country is frightening away investment of private capital.

Changes in productivity

The estimation of labour productivity in the economy of British Guiana cannot be fully undertaken due to lack of detailed data. However, on the basis of the four major industries — rice, sugar, bauxite and timber — the average annual compounded rate of productivity increase may be estimated at 2.3 % for the period 1954-60.

This rate of 2.3 % must be considered as an upper limit for the economy as a whole since other sectors of the economy, particularly the professions and personal services sector, will have a considerably lower rate. Again, as British Guiana is inclined to develop and diversify the agriculture sector, especially rice, and expansion is anticipated in manufacturing sectors, which will be quite new to the labour force, the labour productivity will probably show some decline in the near future.

Growth of income, product and expenditure, 1960-75

The future of the economy of British Guiana is very much of an unknown quantity due to the political turmoil, dependence on foreign public and private capital and the fluctuating past trend of the economy as a whole.

The method of economic projection has therefore been simply to reconcile between a gross national product (GNP) projection on the basis of an increase in the labour force and productivity and a sectoral growth projection arrived at from the past trends and future development programmes. The finally accepted projection is subjected later on to a feasibility test on the basis of an inter-industry table for 1959 (Table 6c).

Table 2. 5. iv shows the three projections of the economic growth of British Guiana for 1960-75.

For the GNP blow-ups, the maximum estimate is based on annual increases of labour force participation at 3.075 % and productivity at 2.3 %. The labour force has been estimated on the basis of the high rate of population growth of 3.07 % annually, together with .005 % of extra employment for the back log of unemployed people, so that the ratio of unemployment to total labour force will be about 6.5 % in 1975 as compared with 18 % in 1956 or 1960. On the other hand, the minimum estimate is based only on the low rate of population growth of 2.849 % annually, ignoring any extra employment and productivity increase.

For the sectoral growth estimates, a detailed analysis has been made of the various economic activities. Apart from government development programmes and policies, the private entrepreneurs have also been approached to indicate their expansion and investment intentions. The sectoral domestic outputs are shown in Table 2.5.v.

Table 2.5.iv

British Guiana: Economic growth, gross national product estimates, 1960 and projections

Item	1960	1965	1970	1975
	Percent			
Gross national product blow-up: maximum	100.0	130.4	169.9	221.5
Gross national product blow-up: minimum	100.0	115.3	133.0	153.0
Sectoral growth	100.0	119.6	137.8	158.0

Table 2.5.v

British Guiana: Estimated sectoral domestic outputs, 1960 and projections (at 1960 prices)

Sector	1960	1965	1970	1975
	BWI$ 1,000			
Agriculture	79,528	90,209	97,830	102,821
Livestock, forestry, and fishing	25,044	35,604	44,862	55,777
Mining	41,216	55,375	60,370	67,873
Food processing	114,359	131,274	141,340	148,076
Chemicals	3,776	5,213	6,214	7,233
Engineering	2,572	2,689	4,137	5,585
Other manufacturing	17,503	22,797	34,312	50,811
Fuel and power	3,558	6,109	8,852	12,850
Distribution	51,725	59,604	68,674	78,861
Transport and communications	30,319	35,472	40,622	46,341
Banking and insurance	9,846	13,258	17,457	22,551
Professions and personal services	25,567	33,718	41,901	50,006
Building and construction	90,413	98,018	103,460	111,760
Rent of dwelling	7,501	9,751	12,414	13,539

Some of the main items contributing to the growth are rice in agriculture and food processing; timber in forestry; shrimp and marine fishing in fishery; bauxite and other ores and alumina in mining; drugs in chemicals; knitwear, saw-milling, ice-making, boots and shoes, enamel ware, glass and pottery, cement, bicycle tyres and tubes and textile mills in other manufacturing; electricity in fuel and power; air transport and

private road vehicles (taxis, buses, trucks and carts) in transport and communications; and professions, personal services and catering in professions, etc. The estimates are based on available land for rice, opening up of the interior for forestry, investment and output estimates in mining, saw-milling etc., and the government's policy to encourage private enterprise and the willingness and anticipated participation of private enterprise in the development of manufacturing and service sectors. Although government is actively investigating and supplying economic reports to private entrepreneurs about the possibilities of various engineering and manufacturing industries, such as small-scale steel rolling and melting plants, light building materials, enamel wares, boots and shoes, glass and pottery, bicycle tyres and tubes, textile mills, cement, and canning, very few of these industries could be included in our estimates as most of them are still in the investigation stage, and private enterprises do not seem to be willing to commit themselves to further investment at the moment.

One must note that we have not projected the production of sugar at a high rate because, owing to the limitation of the guaranteed market for sugar exports at a high price, the industry has already reached the optimum economic level. Expected growth in the sugar industry will come from increased peasant cultivation and intensive production methods which will be sufficient to take care of the expanding domestic market.

The output data for the above main economic activities are given in Table 2.5.vi. For rice the figure for 1960 is the amount actually milled, whereas the figures for other years are the estimated milled equivalent of rough rice after a deduction of 10% for seed and feed for animals. For sugar, 1960 was a very good year; the annual average production and exports for 1957-60 were only 302,000 and 280,000 tons, respectively.

The growth rates for the services sectors of the economy have been assumed to follow in general the growth of the whole economy. As for building and construction, the greater part of which is fixed capital formation, we have estimated the capital formation from 1959 capital output ratios with some adjustment for the mining and other manufacturing sectors, the investments in which are expected to change to some extent.

On the basis of above sectoral growths, the GDP at factor cost and GNP figures arrived at are as shown in Table 2.5.vii.

The differences between GDP and GNP are due to net factor income payments to rest of the world, most of it being the dividend and profit of the private overseas capital invested in British Guiana.

Comparing the GNP blow-ups and sectoral growth pattern, we are inclined to accept the latter projections. Since in an under-developed economy the growth process will lower the productivity due to difficulties in acquiring new skills required for diversified economic activities, and since the only labour intensive activity is going to be the rice industry, the sectoral growth projection appears to us as the most likely pattern of economic growth in British Guiana. It may be remembered that 1960 was a very good year as against the stagnant period of 1957-59, and therefore the indicated growth by 1975 will not be a negligible achievement in view of the past trend of the economy.

Table 2. 5. vi

British Guiana: Estimated output of selected items 1960 and projections

Item	Unit	1960	1965	1970	1975
Rough rice	1,000 long tons	200	286	329	348
Timber	1,000 cu.ft.(true vol.)	6,787	8,784	13,176	19,764
Shrimp fishing	1,000 pounds	2,613	5,226	6,533	8,166
Marine fishing	do.	9,333	14,000	18,666	23,333
Bauxite and other ores	1,000 long tons	2,594	3,554	3,891	4,410
Rice	do.	99	162	193	207
All chemicals	BWI$1,000 (1960 prices)	3,776	5,213	6,214	7,233
Knitwear and dress-making	do.	1,935	1,990	2,388	2,786
Saw-milling	do.	11,651	15,079	22,618	33,927
Ice-making	do.	295	424	530	641
Boots and shoes	do.	—	1,000	2,000	3,000
Enamel ware	do.	—	100	300	400
Glass and pottery	do.	—	—	400	800
Cement	do.	—	—	1,500	2,000
Bicycle tyres and tubes	do.	—	—	—	300
Textile mill	do.	—	—	—	2,000
Electricity	mil. kw. hours	55	94	136	198
Air transport	BWI$1,000 (1960 prices)	1,250	1,875	2,500	3,125
Private road vehicles	do.	15,877	18,573	21,267	23,964
Professional services	do.	2,076	3,613	5,184	6,676
Personal services	do.	10,366	13,476	16,586	19,695
Catering	do.	7,440	9,672	11,904	14,136
Sugar	1,000 long tons	334	332	335	340
(Sugar export)	do.	309	310	310	310

Table 2. 5. vii

British Guiana: Gross domestic product and gross national product estimates for sectoral growth projection, 1960 and projections (at 1960 prices)

Item	1960	1965	1970	1975
	BWI $ 1,000			
GDP at factor cost	269,852	322,491	371,565	426,672
GNP	256,031	306,303	352,717	404,487

Table 2.5.viii

British Guiana: Estimates of gross domestic product at factor cost by industrial origin, 1960 and projections (at 1960 prices)

Sector	1960		1965		1970		1975	
	BWI$1,000	Percent	BWI$1,000	Percent	BWI $ 1,000	Percent	BWI$1,000	Percent
Agriculture	52,896	19.60	58,648	18.19	63,295	17.03	66.004	15.47
Rice	10,722	3.97	15,348	4.76	17,687	4.76	18,703	4.38
Sugar cane	32,281	11.96	32,135	9.97	32,572	8.76	33,227	7.79
Others	9,893	3.67	11,165	3.46	13,036	3.51	14,074	3.30
Livestock, forestry, and fishing	20,642	7.65	27,123	8.41	34,098	9.18	42,645	10.00
Forestry	8,395	3.11	10,856	3.37	15,024	4.05	20,566	4.82
Others	12,247	4.54	16,267	5.04	19,074	5.13	22,079	5.18
Mining	23,132	8.57	31,549	9.78	34,507	9.29	39,061	9.16
Food processing	20,730	7.68	23,058	7.15	24,633	6.63	25,692	6.02
Rice	2,337	.87	3,815	1.18	4,536	1.22	4,870	1.14
Sugar milling	13,551	5.02	13,590	4.22	13,594	3.66	13,602	3.19
Others	4,842	1.79	5,653	1.75	6,503	1.75	7,220	1.69
Chemicals	1,157	.43	1,660	.52	1,963	.53	2,274	.53
Engineering	1,539	.57	1,581	.49	2,294	.62	3,007	.70
Other manufacturing	5,638	2.09	7,293	2.26	10,842	2.92	16,268	3.81
Fuel and power	2,337	.87	4,013	1.24	5,814	1.56	8,440	1.98
Distribution	39,292	14.56	45,277	14.04	52,167	14.04	59,905	14.04
Transport and communic	18,974	7.03	21,902	6.79	24,828	6.68	28,146	6.60
Banking and insurance	8,383	3.11	11,288	3.50	14,863	4.00	19,200	4.50
Professions and personal services	16,553	6.06	21,560	6.69	26,573	7.15	31,570	7.40
Building and construction	28,791	10.67	30,797	9.55	32,811	8.83	35,555	8.33
Rent of dwelling	3,456	1.28	4,493	1.39	5,720	1.54	6,238	1.46
Government	26,532	9.83	32,249	10.00	37,157	10.00	42,667	10.00
Gross domestic product at factor cost	269,852	100.00	322,491	100.00	371,565	100.00	426,672	100.00
Index, 1960 = 100	100.00		119.51		137.69		158.11	

On the basis of the sectoral growth projection it is expected that there will be little improvement in the unemployment situation in the future. The ratio of unemployment to total labour force is expected to go down to 13 % in 1975 from 18 % in 1960. There was no change in the unemployment position between 1956 and 1960.

The structure of the economy will not be appreciably changed either as may be seen from the percentage distribution of the GDP at factor cost by industrial origin (Table 2. 5. viii). Except for livestock, forestry and fishing, mining, chemicals, engineering, other manufacturing, fuel and power, banking and insurance, the percentage contributions of the other sectors have either remained stationary over the years or declined to some extent. However, the absolute amounts of GDP from chemicals, engineering, fuel and power, and even other manufacturing, are so small that the economy will still remain predominantly agricultural, or, if we bring in forestry and mining, will be based on primary industries only.

Estimates given in Table 6b of expenditure, GDP, GNP, and national income, and per capita figures for each based on the low rate of population increase (which seems to be more acceptable than the high rate), show that after 1965 the economy of British Guiana will lapse again to a stagnant period. Unless there are more investments in the economy than are envisaged in our projection, the growth in national income will be barely sufficient to maintain the per capita income level reached in 1965. This is mainly because of the high rate of population growth, an exponential rate of 2.849 % annually, and also our conservative estimate of future growth of the economy. Even if the exports will be higher than imports from 1965 onwards, it is rather difficult to anticipate considerably higher investments in the economy either by the government because of high public debt charges, or by the private entrepreneurs with their faith in British Guiana shaken by political strife and turmoil.

Table 2. 5. ix

British Guiana: Ratios of "final demand" domestic outputs to "growth" domestic outputs, 1960 and projections

Sector	1960	1965	1970	1975
	Percent			
Agriculture	102.22	106.88	108.81	112.39
Livestock, forestry, and fishing	141.61	126.96	117.18	102.78
Mining	90.09	91.25	92.56	93.90
Food processing	121.51	124.01	126.82	130.40
Chemicals	222.91	188.89	179.98	175.17
Engineering	1200.39	1317.24	946.56	785.27
Other manufacturing	199.16	179.72	129.49	106.16
Fuel and power	288.41	157.23	123.12	95.80
Distribution	95.68	97.97	95.11	93.21
Transport and communications	98.87	99.62	97.20	95.60
Banking and insurance	111.97	99.16	85.37	74.80
Professions and personal services	107.00	97.36	89.96	86.48
Building and construction	102.15	102.73	103.29	103.98
Rent of dwellings	107.50	100.38	91.76	97.56
Total	116.95	115.97	112.90	110.46

The feasibility test by inter-industry analysis has been attempted to examine any imbalances in the economy. From the Leontief inverted transaction matrix of the inter-industry table for the economy of British Guiana 1959 (Tables 6c and 6d), total supply of goods and services necessary to meet the projected final demands (i.e., government and household expenditures, exports and gross domestic capital formation) have been estimated for 1965-75. Allowing for imports in the same proportions of imports to total supply as in 1959, we have obtained the "needed" domestic outputs. The ratios of these "needed" domestic outputs to our sectoral growth domestic outputs (Table 2.5.ix) show that a larger proportion of imports than in 1959 will be necessary to balance the economy. However, by 1975 livestock, forestry and fishing, chemicals, other manufacturing, and fuel and power will be well advanced in their bid towards import substitution, and engineering will also make significant progress. An interesting fact is that mining has more export potential than at present and even by 1975 it will not be fully exploited. The major bottlenecks appear to be the agriculture and food processing sectors, where imports will be increasing, and also the building and construction sector which would require more expansion. On the other hand, distribution, transport and communications, banking and insurance, and professions and personal services will be more than adequate. Thus the imbalances in the economy require significant efforts in import substitution activities, especially in processing and manufacturing industries.

EXPLANATORY NOTE FOR PART TWO

LIST OF INDUSTRIES INCLUDED IN EACH SECTOR

Territory and sector	Activities included
Jamaica	
1. Sugar cane growing	Farmers, estates, factory — sugar, rum molasses and rum bottling.
2. Export agriculture	Banana, citrus, coffee, cocoa, pimento, ginger, other export growing and processing (packing, pulping, washing, drying, roasting where applicable). This sector excludes local consumption of these commodities and includes all distribution of exports between grower and ports of loading.
3. Domestic agriculture	Cultivation only of pulses and vegetables, herb tea, flowers, rice, tobacco, root crops, fresh fruit. Forestry and products for processing, e.g., mangoes, ackee, pineapple, coconuts. Also all commodities consumed domestically that are mainly export goods.
4. Livestock and fishing	Poultry, eggs, milk, fish, meat production.
5. Mining and quarrying	Bauxite, alumina, gypsum quarrying.
6. Construction	All private and public capital formation and maintenance of capital except small items of repair (in Manufacturing 4).
7. Manufacturing 1: food, drink and tobacco	Coconut products, cassava, cigarettes, cigars, oils and soaps, biscuits, cornmeal, bakeries, condensed milk, beer, carbonated beverages, ice making, liqueurs, ice cream, animal feeds, pimento oil, sugar confectionery, rice milling, tobacco curing, canning and preserving, macaroni, local beverages, butchers.
8. Manufacturing 2: textiles, fibres and leather	Clothing, cloth, buttons, mattresses, zip fasteners, straw goods, footwear, leather products, shoe heels, coir products, rope and cordage.

Territory and sector	Activities included
9. Manufacturing 3: heavy industries	Cement, stresscrete, gypsum products, blocks, tiles, boat building, wooden containers, wooden handicraft, plumbing,, sawmills, metal beds, aluminium products, metal fixtures, furniture and fixtures, metal containers.
10. Manufacturing 4: miscellaneous	Newspapers and publishers, advertising, paper products, petrojel, records, tyre retreading, batteries, dyes, anhydrous alcohol, neon signs, job printing, rubber stamps, charcoal, toilet preparations, motor repair, paint, oxygen, plastics, carbon dioxide, electrical repairs.
11. Distribution	All wholesale, retail, commission agents, etc.
12. Public utilities	Water, gas, electricity.
13. Transport, etc.	Wharfage, stevedoring, cold storage, citrus packing, rail-road, road passenger, shipping, travel agents, taxis, airline agents, airlines, communications.
14. Services	Banking, life insurance, general insurance, building societies, real estate, mutual finance, other investment, Industrial Development Corporation, education, medical and health, legal, hotels, restaurants, clubs, recreation and entertainment clubs, cinema, racing, Jamaica Broadcasting Corporation, other — laundries, barbers, beauticians, tailoring, shoe repair, photography.
Trinidad and Tobago	
1. Petroleum and asphalt	Mining and refining of oil; mining of asphalt, natural gas.
2. Sugar and rum	Manufacture of sugar, rum, molasses, bitters and bagasse.
3. Manufacturing	All other manufacturing.
4. Transport and communications	Taxis, trucks, buses, air services, telephone and cable and wireless.
5. Public utilities	Port services, harbour master, electricity, railways, post office.
6. Building and construction	Building and construction done on behalf of other industries and services, government and households.
7. Government	Central and local.

Territory and sector	Activities included
8. Services	Distribution, tourism, banking, domestic services, etc.
9. Agriculture	Export and domestic agriculture, livestock and fishing, forestry and quarrying.
British Guiana	
1. Agriculture	Rice, sugar cane, coconut and copra, other agriculture (fruits and vegetables, coffee, cocoa, corn, etc., ground provisions, tobacco leaves, fodder, etc.).
2. Livestock, forestry and fishing	Cattle, pigs, etc., poultry, milk, eggs, honey, etc., hides and skins (raw). Forestry and charcoal making, balata and barks. Fishing — sea, inland and aquarium.
3. Mining	All minerals, stone and stone-crushing, sand, etc.
4. Food processing	Rice milling, sugar and molasses, beverages — alcoholic and others, oil and fat, meat, coffee, tobacco, bakery, dairy products, milk pasteurisation, canned foods, etc.
5. Chemicals	Drugs, oxygen, soap, matches, paints and dyes, fertilisers, etc.
6. Engineering	Foundry, boat building, repair and maintenance of machinery, metal manufactures, electrical and transport equipment.
7. Other manufacturing	Furniture, leather, knitwear and dressmaking, jewellery, handicrafts, printing, saw-milling, concrete blocks, all non-metal manufactures.
8. Fuel and power	Electricity, fuel oil and lubricants.
9. Distribution	Wholesale and retail trade, commission agents, travel and insurance agents, film distributors, marketing organisations, storage and warehouses, wharves, advertising, gasoline distribution and petrol pumps.
10. Transport and communications	Air, river, and sea, railways, road (excluding all transports not available for hire outside). Post and telecommunication, cable and wireless, radio, harbours.
11. Banking and insurance	Commercial banks, post office savings bank, insurance companies, co-operative societies, money-lenders, pawn-brokers, real estate dealers, investment companies.

Territory and sector	Activities included
12. Professions and personal services	Professions, tailors, barbers, domestics, laundries, funeral parlours, cinemas, sports clubs and fairs, professional societies, schools (excluding government), religious and welfare missions (churches, hospitals, Red Cross, etc.), catering.
13. Building and construction	Repairs and maintenance of land and buildings, fixed capital formation.
14. Rent of dwelling	Actual and imputed rents of all residential dwellings.
15. Government	Local and central government income and expenditure (excluding working of government enterprises).
16. Household	Salaries and wages, etc., income from property and farms, professions, etc., profit (net of all taxes) and consumption expenditures.
17. Foreign countries	Imports and exports of goods and services and current transfers.
18. Gross domestic fixed capital formation	Net change in stocks, capital formation in building and plant and machinery, prospecting and exploring for minerals, and improvements of land.

Part Three

THE PROJECTION OF DEMAND

Chapter 1

DEMAND AND INCOME

Given the expected growth in population and in income per capita, the estimation of future demand depends primarily on the relation assumed to exist between demand and income. This is normally expressed in terms of the income elasticity of demand for the different products and product-groups under consideration. The statistical measurement of these income elasticities may be carried out by one, or both, of two different methods. Time-series data relating to income and consumption per capita and to changes in prices over a suitable period may yield serviceable estimates both of income elasticities and of price elasticities. Alternatively, survey data relating to consumption or expenditure by different groups of households in a given period may be analysed to show the relation between total household income or expenditure and the demand for individual items. A single survey however will not permit the estimation of price elasticities, since the price situation must normally be assumed to be the same for all the households taking part in it.

In the present study, reliance has had to be placed mainly on the second or cross-sectional method, since satisfactory time-series data for a sufficient number of years are not available. Whenever possible however, the changes which have taken place in recent years in average consumption levels (some of which are of substantial magnitude) have been taken into account in determining the elasticity to be used for purposes of projection.

Expenditure surveys for cost-of-living index purposes have been made in several West Indian territories, and some estimates of income elasticities based on this material have already been published (Ref. D. 1.). For the purpose of the present study, a number of special analyses were made of the results of the survey carried out in Jamaica in 1958. Use has also been made of some of the results of other surveys, but it has not been possible to analyse these in the same datail.

The Jamaica survey was carried out by the Government Department of Statistics, and a report based on it was issued in 1960 (Ref. D. 2). It covered 1,160 households divided roughly according to the distribution of total population between the main urban area, Kingston, the other main towns on the island, and the rural areas. The survey records were made available by courtesy of the Department, but it bears no responsibility for the use which has been made of them for this study.

An itemised food budget, including both purchased foods and those obtained as gifts or from domestic production, was requested from each participating household for two weeks at different periods of the year. Information was also asked for on other principal categories of expenditure during the year, and on the earnings of members of the household.

In view, however, of the difficulty of obtaining reliable estimates of household income, the analysis of demand elasticities has been based on the recorded total expenditure of the household as the determining or independent variable.

In order to carry out the analysis, households from the rural areas and from Kingston were first grouped into a series of household types of constant composition in order to eliminate the influence of variations in size and numbers of children on the expenditure pattern. The records for each of the most numerous of these groups were then analysed by fitting for each of the major commodity groups a semi-logarithmic equation of the form

$$y = a + b \log x$$

where x represents total household expenditure expenditure and y the expenditure on the particular product-group under investigation. The income elasticity of demand, represented mathematically by $\frac{x}{y}\frac{dy}{dx}$, is equal, in this formulation, to b/y, the average value of y being taken in order to give the average elasticity for each sample. 1/ By this procedure a number of estimates of the elasticity for each product-group are obtained. These may, in appropriate cases, be combined by suitable methods of averaging to give an overall estimate of elasticity for the whole population.

The above equation is only one of a number of different equations from which estimates of income elasticity may be derived. The choice of the equation depends on the nature of the relationship assumed to exist between total expenditure and expenditure on a particular item, and in particular, on the change (if any) expected to occur in the value of the elasticity as the income or consumption-level itself changes. In the above formulation the elasticity is assumed to diminish as the income or consumption level rises, and this seems in general a more satisfactory assumption than the hypothesis of a constant income elasticity, especially in projecting demand from a base period in which the initial elasticity is high, as it is for many commodities in the West Indies. The semi-logarithmic equation is not the only type which satisfies an assumption of this kind, but it has the merit of being readily calculated and simple to apply for purposes of projection.

After obtaining the elasticity estimates in this way, it is necessary to consider how far they seem to give a valid representation of the demand situation in 1958 and in what respects, if any, it is desirable to adjust them in projecting future levels of demand. In the present instance it was necessary first of all to allow for the fact that only a relatively small part of the whole survey sample could be used in the elasticity analysis, and that the households included were of small size and had relatively few children. As would be expected, they had considerably higher average values of total expenditure and of expenditure on food per person than the whole sample. Part, but not the whole, of this difference is due to the relatively small number of children in the households analysed. A rough estimate was therefore made of the difference in expenditure per equivalent adult between the households included in the elasticity analysis and households in the whole of the sample, and the average elasticities derived from the analysis were adjusted to the estimated average rates of expenditure in the full samples of both urban and rural households. Since the

1/ In practical computation using common logarithms b must be multiplied by $\log_{10}$ (.43429...) to obtain the estimate of elasticity.

semi-logarithmic formula assumes that income elasticity varies inversely with the level of consumption or expenditure, the effect of the adjustment was in nearly every case to increase the elasticities above the calculated figures; in general however, the adjustment was relatively greater for the rural than the urban households.

Having arrived in this way at estimated figures valid both for the rural and urban sections of the sample, we must next take account of the fact that the data used for the analysis related to the expenditure incurred by the housewife on the different items purchased and not to their quantity or their value at ex-farm or import prices. It is well-known that the elasticity of expenditure on a given type of food has in general a higher value than the elasticity of the quantity purchased, because part of the additional expenditure incurred by higher-income families is devoted to higher priced varieties of food or to products whose value includes a higher proportionate element of processing or distributive costs. The element of quality elasticity may play an important part in determining the total expenditure elasticity, and estimates of its effect can be obtained from surveys (such as the United Kingdom National Food Survey) in which the elasticity can be separately measured both for quantities purchased and for expenditure. In the Jamaica survey, no precise allowance for this "quality factor" was possible, but since what is required for purposes of projection is an estimate of the quantitative elasticity in terms of farm output or imports, a downward adjustment, determined in the light of general probabilities, was made to the estimates resulting from the procedure described above. In most cases this second adjustment largely cancelled the effect of the first so far as the urban households were concerned, but for the rural sample the elasticities remained on the whole higher than the unadjusted figures resulting directly from the analysis.

If the figures obtained in this way could be taken as valid estimates of the income elasticities of demand for the rural and urban sections of the total population respectively, it would be sufficient to weigh them according to the rural and urban proportions of expenditure on each commodity in order to calculate average figures applicable to the population as a whole. This procedure, however, assumes that the survey was in fact representative of the whole population, an assumption which cannot be taken for granted without question. The survey was conducted by random methods and was intended to give a representative sample, but it seems probable that, like most surveys, it failed to give adequate representation to the highest income-strata. The average food expenditure recorded in the survey (J£26.4 per capita per year) falls substantially short of the official estimate made for national income purposes of the total personal expenditure on food, which works out at an average for 1958 of about J£ 39.8 per capita. An exact agreement between these two figures is not to be expected for a number of reasons; in particular the national income estimate includes the expenditure of non-residents, which must be excluded in order to give a figure comparable with the survey average, while the latter is subject to errors of recording which are obviously much more likely to result in under-estimation than in over-estimation. It is however difficult to explain in these ways more than a small part of the relatively large discrepancy between the two figures. If the national income estimate is to be taken as approximately accurate, therefore, it seems necessary to assume that the highest income-groups among the population, say the wealthiest 10 to 15 percent, were substantially under-represented in the survey. The difference would be largely accounted for if the survey average could be taken to represent the expenditure of say 85 percent of the population, and if the average food expenditure of the remaining 15 percent were assumed to have amounted to about J£100 per capita per year or about J£ 2 per week. This is by no means an improbable figure — it was in fact exceeded by about 14 percent of the two-

adult households surveyed in Kingston. But if this is the explanation of the discrepancy between the two estimates, it follows that a group of households whose income elasticity of demand must be much lower than the general average was in effect excluded from the survey sample. It must be remembered that the weighting appropriate to the averaging of elasticities over different sections of the population is proportional not to their numbers, but to their expenditure, and this will give the under-represented wealthy consumers a much higher weight than they would receive on the basis of their numbers. These considerations seem too important to be ignored, and although the allowance for the under-represented income-groups can only be made on a very rough basis it has been assumed that its effect is to reduce the elasticities applicable to the whole population in 1958 by about 10 to 15 percent as compared with the weighted averages resulting from the calculations previously described.

Chapter 2

FOOD EXPENDITURE IN JAMAICA IN 1958: SURVEY RESULTS

Details of the expenditure on food recorded in the Jamaica survey are summarised in Table 3.2.i. Before discussing the elasticity estimates derived by the methods outlined above, attention may be drawn to certain features of the food expenditure pattern as revealed by these figures.

The most striking feature is the large difference in average expenditure between the urban and rural groups of households. The Kingston families spent about 2 1/2 times as much on food per capita as the rural families, and on fresh meat and fish, and milk products and eggs their rate of expenditure was about three times that of the rural families.

Part of this very large difference is explained by the variation in household size and composition, the rural families being much larger and including a much larger proportion of children than the urban households. This factor, however, can be allowed for by comparing only rural and urban households of identical composition in the special elasticity analysis (see Table 3.2.ii). When the comparison is made on this basis the total food expenditure of the rural families rises to about half the Kingston rate and there are roughly corresponding changes in the averages for individual food groups. It is noteworthy that when households of identical composition are compared the Kingston rate of expenditure on roots and starchy vegetables is lower than that of the rural households.

A further part of the total difference is explained by differences in price levels between the two areas, Kingston prices being generally higher, though the price records on which this statement is based (which were made available by the Jamaica Department of Statistics) show that there are some products, especially imported items, which are at times cheaper in Kingston than elsewhere on the island. The food groups mentioned above as showing the greatest relative difference in expenditure levels are also those for which the difference in price levels seems to have been greatest. The difference in prices amounted to perhaps 20 to 30 percent for fresh meat and fish and possibly to somewhat more for fresh fruit and vegetables (other than roots and starchy vegetables). Fresh milk was substantially more costly in Kingston than elsewhere and there was a similar though smaller difference in the price of eggs. Many foods however were (and are) subject in Jamaica to official price-control orders, and these (which include condensed milk, butter and cheese) are practically always sold at uniform prices throughout the island.

It is clear, therefore, that when allowance is made for both these factors, much the greater part of the difference in expenditure levels remains unaccounted for and reflects a genuine quantitative difference in consumption. In many respects indeed, the two groups

of households seem to belong to different worlds. The upper stratum of the Kingston households represents a middle-class standard of expenditure and consumption not very different from what might be found in Europe, while the lower strata among the rural households exhibit the consumption and expenditure pattern of the West Indian peasant diet. Over 20 percent of the rural households included in the analysis, for instance, recorded no consumption of fresh meat or fish, but the proportion among the Kingston households which had no consumption of these products was negligible. The changes in food consumption which occurred during the last decade represent in many respects a process of transition between these two modes of life, and there seems no doubt that this process will continue to characterise the demand pattern of the next twenty years, assuming that the rise in average income levels and the spread of urban consumption habits is maintained.

Table 3.2.i

Average food expenditure per person per week, Jamaica Expenditure Survey, 1958

Item	Kingston	Other towns	Rural	Total or weighted av.
Number of households	352	127	681	1,160
Number of persons	1,138	506	3,209	4,853
Persons per household	3.23	3.98	4.71	4.18
	Shillings	Shillings	Shillings	Shillings
Fresh meat	2.44	1.82	0.84	1.32
Tinned and pickled meat	0.80	0.31	0.16	0.33
Fresh fish	0.89	0.54	0.14	0.36
Tinned and pickled fish	0.49	0.36	0.37	0.40
Roots and starchy veget.	1.61	1.68	1.61	1.62
Other fresh vegetables	0.84	0.45	0.30	0.44
Fresh fruit	0.69	0.36	0.28	0.38
Tinned and dried fruit and vegetables	0.48	0.33	0.27	0.33
Milk products and eggs	2.20	1.54	0.72	1.15
Oils and fats (excluding butter)	0.66	0.60	0.36	0.46
Cereals and bakery prod.	2.70	1.77	1.19	1.60
Sugar, sweets, etc.	0.66	0.52	0.39	0.47
Non-alcoholic drinks	1.12	0.90	0.39	0.61
Meals away from home	2.91	0.86	0.24	0.93
Total	18.48	12.03	7.25	10.37

Table 3. 2. ii

Relative expenditure per person on food in rural and Kingston households (ratio of Kingston to rural averages). Jamaica Expenditure Survey, 1958

Food group	Household type 1/		
	2A	2A + C_1	2A + C_2
All food (less alcoholic drinks)	1.98	2.07	1.81
Cereals and bakery products	1.64	1.87	1.78
Sugar, sweets and condiments	1.18	1.08	1.21
Roots and starchy vegetables	0.96	0.95	0.79
Other fresh vegetables	3.02	2.82	1.88
Fresh fruit	2.09	2.05	3.22
Tinned and dried fruit and vegetables	1.50	1.44	0.56
Fresh meat and fish	2.72	2.60	3.15
Tinned pickled meat and fish	1.69	2.06	1.42
Milk products and eggs	2.28	2.14	2.33
Oils and fats	1.32	1.66	1.33

1/ See footnote 1 to Table 3. 3. i.

Chapter 3

INCOME ELASTICITIES OF DEMAND IN JAMAICA

A summary of the evidence as to income elasticities for the principal food groups as devised from the Jamaica survey is given in Table 3. 3. i. For six of the most important of these groups the regression coefficients from which the elasticities are calculated are shown in Table 3.3.ii which also gives the corresponding coefficients of correlation and the estimated standard errors of both the regression and the correlation coefficients.

The figures in the right-hand column of Table 3. 3. i are the general averages which have been derived from the survey figures after making the adjustments already described in order to reach estimates which can be taken as applicable to the population as a whole. Before using these figures as the basis of the estimated elasticities required for purposes of projection, however, it is desirable to consider them in relation to the changes in average income and consumption levels in Jamaica which have taken place during the last decade. So far as possible two sources of information as to changes in consumption between 1950 and 1958 have been used; these are the quantitative estimates, where available, of average consumption per capita, and a deflated series of estimates of personal expenditure per capita on certain commodities derived by applying an index number of retail prices to the national income estimates of expenditure at current prices in different years. Unfortunately, however, the dearth of reliable statistical material has made it necessary to confine this examination to a few of the major products or product-groups.

In respect of meat and dairy products and of total food expenditure there is good agreement between the recorded changes and those calculated from the estimated elasticities. In the case of sugar, estimates published by FAO (Ref. D.8) show an increase in per capita consumption in Jamaica between 1950 and 1958 of 19 percent, which is reasonably consistent with the estimated elasticity derived from the survey (though the latter relates to a group of products including confectionery for which the income elasticity is probably higher than for sugar itself). For the remaining food groups however the agreement is less close, and in some cases there is difficulty in reconciling the estimated actual changes in consumption with the survey evidence as to demand elasticity.

In the case of oils and fats, supply statistics appear to place it beyond doubt that average consumption per capita rose between 1950 and 1958 by about 80 percent, which implies a much higher income elasticity than is warranted by the survey evidence. Retail prices of these products appear to have fallen somewhat in relation to those of food in general, but the increased consumption cannot be explained by substitution at the expense of butter since the consumption per capita of butter itself more than doubled during the period. Domestic production of copra in Jamaica was however much lower in 1950 than in 1958 since recovery

Table 3.3.i

Average expenditure per household per week for major food groups and estimated income elasticity, by type of rural and Kingston household, Jamaica Expenditure Survey, 1958

Item	Rural households 1/				Kingston households 1/			General average 2/
	2A	2A + C_1	2A + C_2	3A	2A	2A + C_1	2A + C_2	
Number of households	72	31	52	31	58	29	18	
								Shillings
All food (excluding alcoholic drinks)								
Expenditure (shillings)	25.90	26.99	30.53	30.96	51.26	55.86	55.24	
Elasticity	0.69	0.80	0.86	0.71	0.61	0.68	1.02	0.65
Cereals and bakery products								
Expenditure (shillings)	4.28	4.21	4.96	5.32	7.00	7.89	8.85	
Elasticity	0.57	0.66	0.87	0.74	0.22	0.45	0.60	0.46
Sugar, sweets etc.								
Expenditure (shillings)	1.22	1.59	1 59	1.61	1.44	1.71	1.93	
Elasticity	0.40	0.50	0.60	0.54	0.53	0.45	0.72	0.39
Roots and starchy vegetables								
Expenditure (shillings)	5.07	5.33	7.21	6.42	4.86	5.09	5.68	
Elasticity	0.42	0.76	0.49	0.35	0.13	0.24	0.58	0.33
Other fresh vegetables								
Expenditure (shillings)	0.92	0.73	1.28	1.17	2.78	2.06	2.41	
Elasticity	0.58	0.57	0.50	0.72	0.64	0.69	0.97	0.54
Fresh fruit								
Expenditure (shillings)	0.89	1.08	0.85	1.21	1.86	2.22	2.74	
Elasticity	0.63	0.48	0.86	0.18	0.88	0.96	2.14	0.66
Tinned and dried fruit and vegetables								
Expenditure (shillings)	1.08	0.99	1.08	1.67	1.62	1.42	0.93	
Elasticity	0.58	0.85	1.11	0.99	0.52	0.42	1.10	0.69
Fresh meat and fish								
Expenditure (shillings)	3.64	3.99	3.66	3.95	9.89	10.37	11.52	
Elasticity	0.81	1.30	1.38	1.10	0.83	0.83	1.31	1.02
Tinned and pickled meat and fish								
Expenditure (shillings)	2.08	2.00	2.40	2.69	3.52	4.12	3.41	
Elasticity	0.46	0.72	0.53	0.75	0.37	0.51	0.93	0.48
Milk products (including butter) and eggs								
Expenditure (shillings)	2.45	3.28	3.03	3.31	5.58	7.02	7.05	
Elasticity	0.96	0.88	1.27	1.67	0.83	0.83	1.39	0.85
Oils and fats								
Expenditure (shillings)	1.48	1.19	1.63	1 85	1.96	1.98	2.17	
Elasticity	0.92	0.68	0.67	0.82	0.28	0.35	0.46	0.60

1/ Types of households:

2A = Households with 2 adults.
2A + C_1 = Households with 2 adults and 1 child under 5 years old.
2A + C_2 = Households with 2 adults and 1 child 5 to 14 years old.
3A = Households with 3 adults.

2/ After adjustment as described in text.

from the effects of the 1943 hurricane was still incomplete. It seems necessary to suppose that consumption levels were abnormally low at this period and that the short-fall in supplies was not made good by imports. In predicting future levels of demand, therefore, the experience of the 1950's may perhaps be disregarded; at all events it seems impossible to ignore the survey evidence as to income elasticity so far as future years are concerned. (It will however be observed from Table 3.4.i. that Jamaican consumption of oils and fats was still much lower in 1958 than that of other territories.)

The consumption of cereal products appears (both from the deflated expenditure estimates and from the tonnage statistics of total supplies) to have increased considerably more than would have been expected on the basis of the survey evidence as to income elasticity. To give a close fit to the deflated expenditure estimates the income elasticity in 1958 would have to be raised to rather more than unity; the supply statistics indicate an increase of average consumption per capita between 1950 and 1958 of about 45 percent, which if wholly due to the rise in income levels would suggest an income elasticity in 1958 of about 0.75, two-thirds greater than the estimate derived from the survey of about 0.45. An elasticity significantly exceeding the latter figure however would be impossible to reconcile with the general evidence relating to income elasticities for cereals in other underdeveloped areas, which do not seem to exceed 0.5 even in the low-income countries of Asia and Africa where standards of living and of food consumption are undoubtedly lower in many cases than in the West Indies. 1/ Mainly for this reason, therefore, it has seemed desirable, in spite of this conflict of evidence, to adhere to the survey-based estimate of 0.45 as the average income elasticity in terms of quantity for the cereals group as a whole in Jamaica.

By contrast with cereals, the average consumption of roots and starchy vegetables, which in countries such as Jamaica represent an important alternative to cereals as sources of carbohydrates, seems to have been falling. However, the supply statistics for this group, which includes many products grown by rural households for their own use, are in the nature of things somewhat conjectural. Substitution in response to price changes may account for part of the change in the relative consumption of root vegetables and of cereals, since the average prices of the former appear to have risen somewhat during the 1950's in relation to those of cereals.

Even in the absence of price changes, however, a rise in the consumption of purchased cereals such as bread and rice at the expense of the subsistence carbohydrate foods would be one of the consequences to be expected from a shift in consumption habits towards a diet of the urban type and away from that characteristic of the traditional rural mode of life. It is evident from the survey analysis that the consumption of roots and starchy vegetables is considerably lower in Kingston households than in rural households. This lower consumption in Kingston is important even though it conflicts with the difference in consumption levels which would have been predicted from the estimates of elasticity within both the rural and urban groups of households (the latter being in every case positive, as they are for all other product groups). In interpreting the survey estimates of elasticity however, it must be remembered that they relate to groups of food that include a number of

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1/ See "Agricultural Products, Projections for 1970", Food and Agriculture Organization, 1962; Annex, Table M4.

different products which were not of the same relative importance in Kingston and in the rural areas, a larger proportion of the total being represented by potatoes among the urban households. Other evidence suggests that both Irish potatoes and sweet potatoes have a considerably higher income elasticity than the other products in the group, and when this is allowed for, a low, or even negative, elasticity among urban households for some of the other root vegetables is not necessarily inconsistent with the survey evidence.

It must be admitted that the statistical evidence on these points is not as conclusive as might be wished. It seems reasonable nevertheless to take the differences in expenditure on root vegetables between rural and Kingston households (expenditures are consistently higher among rural households) as giving an indication (when considered in relation to the difference in total expenditure between the same groups) of the change to lower expenditure on root vegetables that would be associated with the increase in income experienced by families moving from the rural to the urban section of the population. In relation to such a change in income the elasticity of demand for root vegetables is obviously negative. Now a continued rise in average income levels in Jamaica seems certain to be associated to a certain extent with growing urbanisation (the term being taken in a broad sense to include changes towards a more urban type of diet which may well affect households living in rural areas as well as those which actually move from the country into the towns). Thus it seems appropriate, in considering the future demand for roots and starchy vegetables, to assume that part of the increase in average income which is expected in future years will be accounted for by an increase in the urban or urbanised section of the population, whose diet will conform to the pattern indicated by the urban sample in the expenditure survey, while part will be due to an overall increase both in urban and in rural income per capita. If so, the elasticity for projection purposes should be an average of the different elasticities appropriate to these two changes.

In the light of these considerations a small negative value was assigned to the income elasticity of demand for root vegetables other than potatoes; for the latter, however, a fairly high positive elasticity was assumed.

The evident need, in this instance, to take account of the influence of urbanisation on the pattern of consumption as a factor distinct from the increase of real income by itself may seem to suggest the desirability of making separate estimates for all foods of the possible change due to urbanisation and of combining these changes with those expected from a uniform overall increase in average income in making the final demand projections. Trial calculations showed, however, that for products other than root vegetables an almost identical result was reached whichever method was used and that the attempt to take explicit account of the urbanisation factor added considerable complications to the process of calculation without appreciably influencing its outcome. This is of course a reflection of the fact that the urban-rural contrasts in consumption indicated by the 1958 survey, although striking and important in themselves, do not, in respect of most commodities, differ in any major way from those to be expected on the basis of the difference in total expenditure between the urban and rural groups of households and the average demand elasticities emerging from the analysis. The roots and starchy vegetables are the only major exception to this statement, and this is the justification for departing from the usual procedure in estimating their demand elasticities.

In general, then, the survey evidence has been accepted as the basis for the estimation of the income elasticities for each of the different product groups. But in projecting the

Table 3.3.ii

Jamaica Expenditure Survey : Analysis of income elasticity

Type and number of households	Regression and correlation coefficients and their estimated standard errors					
Rural	Y_1	Y_2	Y_3	Y_4	Y_5	Y_6
2A (72)	b 41.1202	5.6524	1.1244	4.94485	6.7695	5.4079
	σ_y 15.3498	2.593095	.577408	2.697818	3.30121	2.455793
σ_z = .3152	r .8442	.6869	.6136	.5776	.6462	.6939
	$\hat{\sigma}_b$ 2.922	.6995	.1704	.822	.943	.4754
	$\hat{\sigma}_r$ .03386	.062245	.07348	.07853	.06864	.06111
2A + C_1 (31)	b 49.4752	6.4011	1.8369	9.3299	11.9588	6.6579
	σ_y 17.4608	2.647357	.8880315	4.14701	4.905355	3.541652
σ_z = .32665	r .9256	.7898	.6757	.7349	.7963	.6141
	$\hat{\sigma}_b$ 3.635	.8816	.3616	.1497	1.6369	1.5396
	$\hat{\sigma}_r$ .025731	.06757	.097603	.0826	.06572	.111873
2A + C_2 (52)	b 60.3551	9.996	2.201	8.1681	11.6364	8.8714
	σ_y 16.405347	3.092637	.928063	3.848273	3.963735	3.87483
σ_z = .2415	r .8885	.7782	.5727	.5126	.70883	.552913
	$\hat{\sigma}_b$ 4.2797	1.11412	.4381	1.896	1.6085	1.8452
	$\hat{\sigma}_r$ .0292	.054694	.093192	.102237	.068999	.0962803
3A (31)	b 50.2796	9.1183	1.9792	5.1469	9.9792	12.7464
	σ_y 17.165937	3.1975	.9395212	3.402411	4.9092872	6.44138
σ_z = .2773084	r .8122	.7908	.5842	.4195	.5639	.548762
	$\hat{\sigma}_b$ 6.49971	1.2684	.49465	1.9999	2.62	3.484
	$\hat{\sigma}_r$ .0611253	.0672865	.118308	.147998	.122494	.12552
Total Rural (186)	b 49.25916	7.2086	1.630533	6.70569	9.2007	7.43352
σ_z = .2936	σ_y 16.47588	2.882355	.8249358	3.628995	4.07431	3.893857
	r .8778	.7343	.58032	.54252	.66302	.5605
	$\hat{\sigma}_b$ 1.9714	.4886	.1678	.7613	.7617	.8053
	$\hat{\sigma}_r$ .01683	.03379	.04863	.051742	.041091	.05029
Kingston						
2A (58)	b 72.3088	3.524076	1.771106	1.433413	20.05632	10.7058534
	σ_y 26.094	2.3816	.8632	1.69912	8.457846	5.092838
σ_z = .295263	r .8182	.4369	.60582	.2491	.7002	.5311
	$\hat{\sigma}_b$ 6.6282	.9518	.304	.7308	2.6926	1.9198
	$\hat{\sigma}_r$ .0434	.10624	.08443	.12316	.06693	.09427
2A + C_1 (29)	b 87.32561	8.23672	1.7835	2.816	21.5567	13.4211
	σ_y 31.8239	3.677004	3.365384	2.610109	9.077834	6.028586
σ_z = .355105	r .9744	.7955	.1882	.38312	.84325	.79055
	$\hat{\sigma}_b$ 36.743	1.17	1.7248	1.2569	2.5564	1.9354
	$\hat{\sigma}_r$ .00939	.068184	.17912	.5844	.05363	.06964
2A + C_2 (18)	b129.8048	12.2564	3.19511	7.8102	35.87786	22.59073
	σ_y 42.46128	4.445425	1.306446	2.899114	12.773914	8.134845
σ_z = .303908	r .92905	.8379	.743253	.81873	.8298	.8440
	$\hat{\sigma}_y$ 12.1554	2.1158	.679214	1.28783	5.5482	3.373
	$\hat{\sigma}_r$ .0332597	.0702213	.1054945	.056493	.073405	.067803
Total Kingston (105)	b 82.86367	6.32293	2.000684	2.75247	22.49793	13.561323
σ_z = .3163811	σ_y 31.139112	3.2775	1.026304	2.23696	9.51821	6.018947
	r .84191	.61036	.61675	.38929	.74782	.71284
	$\hat{\sigma}_b$ 5.18296	.800777	.249115	.635564	1.94918	1.3020841
	$\hat{\sigma}_r$ .02842	.061234	.0604687	.0828006	.0430143	.0480005
Total All Areas (291)	b 62.06353	6.910132	1.35471	3.0097	14.90487	9.35087
σ_z = .3606705	σ_y 25.835966	3.3329716	.9056313	3.221404	7.2918726	5.038248
	r .8664	.7485	.53952	.33697	.73722	.66985
	$\hat{\sigma}_b$ 2.0968	.359292	.123934	.49297	.80076	.607606
	$\hat{\sigma}_r$ .01462	.02578	.04156	.051965	.026761	.03232

Explanation of Symbols:

Y_1 = Total expenditure per household on food (less alcoholic drinks).
Y_2 = Expenditure per household on cereals and bakery products.
Y_3 = Expenditure per household on sugar, sweets and condiments.
Y_4 = Expenditure per household on roots and starchy vegetables.
Y_5 = Expenditure per household on fresh meat and fish.
Y_6 = Expenditure per household on milk products and eggs.
z = Logarithm of total household expenditure.

2A = Households with 2 adults
2A + C_1 = Households with 2 adults and 1 child under 5 years old.
2A + C_2 = Households with 2 adults and 1 child 5 to 14 years old.
3A = Households with 3 adults
σ = Standard deviation.
$\hat{\sigma}$ = Standard error.

demand for individual products, separate estimates of elasticity are in most cases necessary for the products falling within each group. Thus while the income elasticity for most kinds of fresh meat is put at 1.10, poultry is given the higher elasticity of 1.50, while a much lower figure (0.10) is assigned to salt meat; within the cereals group similarly a lower elasticity has been assumed for rice and corn meal than for wheat flour and its products. In the estimation of these individual elasticities there is inevitably a greater element of personal judgement since precise statistical evidence comparable to that used in estimating the group elasticities is not in most cases available. However, in most cases the nature of the probable relationship between the elasticities for different types of food within a given category is reasonably certain.

The formula employed in making the projections on the basis of the elasticities thus established assumes the continuance during the period covered by the projection of the semi-logarithmic relation between demand and income. On this assumption the projecting equation is:

$$\frac{Y + \Delta Y}{Y} = 2.3026 \quad \eta \quad \log_{10} \quad \frac{X + \Delta X}{X}$$

where η is the income elasticity of demand for each commodity, Y the base period consumption per capita and X the base period income per capita. This equation gives an estimate of average demand per capita of population, from which the aggregate demand is derived by multiplying by the projected relative population for the data in question and by the aggregate supply in the base year 1958.

Chapter 4

INCOME ELASTICITIES OF DEMAND IN OTHER WEST INDIAN TERRITORIES

The estimates of income elasticity for the other West Indian territories are rather less firmly established than those for Jamaica, since, apart from the article by Cumper already referred to and some unpublished work by Taylor there is little direct evidence on which to base them. Cumper's estimates of income elasticity relate to Barbados in 1951-52 and to British Guiana in 1956. In both cases the foods with the highest elasticities were meat and dairy products, for which the figures reached or surpassed unity; most other foods fell within a range of values from about 0.4 to about 0.8, but cereals in British Guiana had a small negative elasticity when home-produced rice was included, though a positive value of about one-half was reached when it was excluded.

On the whole the evidence did not seem to justify any major departure from the elasticity values arrived at for Jamaica except where this was clearly indicated by the known differences between the territories in income levels and in the general patterns of food consumption. It will be seen however from Table 3.4.i. in which the estimated levels of food consumption and expenditure in the different territories are compared, that some of these differences are important.

The principal contrast between the diets of the four areas is in the consumption of cereals, which is much higher in British Guiana and Trinidad and Tobago than in Jamaica or the smaller islands. This is mainly due to the large consumption of rice in British Guiana and Trinidad and Tobago, both of which have considerable numbers of East Indians in the population. Roots and starchy vegetables are consumed in relatively small quantities in these territories, especially in British Guiana, where peasant agriculture is mainly centred on the production of rice. In the smaller islands, the general pattern of consumption resembles that of Jamaica, as does the racial constitution of the population. The populations of the individual islands in this group differ from one another in many respects, but ti is possible to find social groups within the Jamaican community with fairly strong resemblances to each of them. The Windward Islands are paralleled by the hill areas of Jamaica and share with them a common dependence on a similar type of subsistence agriculture, while Barbados and the Leeward Islands are comparable with the flatter and lower-lying regions of Jamaica which are dominated, like them, by the plantation sugar economy.

In comparing the estimates of food expenditure and gross domestic product, there are certain differences in price levels between the territories which should be taken into account. Food prices and retail prices in general are probably highest in Jamaica and lowest in British Guiana and Barbados. Thus the difference in gross domestic product per capita between Jamaica and British Guiana was less in real terms than appears from the table,

while food expenditure reckoned at a common price level would probably have amounted to much the same figure in both territories. There is no doubt however that Trinidad and Tobago enjoyed the highest level both of real income and of food consumption, and the group of smaller islands the lowest, even though the latter include Barbados which, individually, had an average real income per capita not very different from that of Jamaica and considerably higher than those of the territories with which it is grouped.

Table 3.4.i

Food consumption per capita of population, by territories, 1958

Item	Jamaica	Trinidad and Tobago	Leeward Islands, Windward Islands and Barbados	British Guiana
		Pounds per year		
Cereals, total	177.5	285.5	179.5	255.1
Rice	42.3	103.0	52.5	149.1
Sugar and sugar preparations	83.5	64.0	85.0	68.0
Roots and starchy vegetables (incl. plantains)	250.9	146.3	179.6	90.0
Vegetables and pulses	70.6	90.2	49.0	47.3
Fruit (incl. bananas)	291.3	167.8	161.9	29.9
Meat (incl. poultry)	30.2	37.0	31.8	23.3
Fish	32.2	25.7	65.0	28.0
Milk products (excl. butter)	52.8	65.8	72.6	66.9
Eggs	9.3	5.4	8.2	3.2
Oils and fats (incl. butter)	18.3	27.5	24.9	33.8
		Calories per day		
Calories	2,111	2,533	2,040	2,200
		BWI$		
GDP per capita (at factor cost)	610	895	342	444
Estimated total expenditure per capita on food	175.1	222.6	1/ 136.4	2 2/ 155.4

1/ 1956, excluding Windward Islands.
2/ 1959.

Source: Data and material developed during the study and other available data.

In view of the part played by rice in the diet both of Trinidad and Tobago and British Guiana its income elasticity must clearly have a much lower value in these territories than in Jamaica or the smaller islands. In British Guiana the elasticity was taken as equal to

zero for rice, but a relatively high elasticity (0.80) was assumed for wheat flour in view of the likelihood of increased demand for bread as diets become more sophisticated and less dependent on subsistence production. In Trinidad and Tobago, on the other hand, rice was assumed to have a small positive elasticity, but since the consumption of wheat flour is already fairly high it was given a rather lower elasticity than that estimated for Jamaica. These values, when weighted in accordance with the estimated contribution of the different products to the calorie value of the 1958 diet, give average income elasticities for all cereals of about 0.3 in Trinidad and Tobago and British Guiana compared with the average of 0.45 for Jamaica. In the smaller islands the elasticity for rice is assumed to be the same as in Jamaica and that for wheat flour rather higher, giving an average elasticity for all cereals of about 0.6.

Table 3.4.ii

Estimated average income elasticities for food groups, by territories
(Weighted according to 1958 calorie consumption per capita)

Food groups	Jamaica	Trinidad and Tobago	Leeward Islands, Windward Islands and Barbados	British Guiana
Cereals	0.45	0.3	0.6	0.3
Sugar and sugar preparations	0.4	0.4	0.4	0.4
Roots and starchy vegetables	-0.06	0.3	0.1	0.3
Vegetables and pulses	0.55	0.3	0.5	0.55
Fruit	0.65	0.55	0.65	0.8
Meat and poultry	0.9	0.8	0.6	0.9
Fish	0.45	0.55	0.4	0.4
Milk products (excl. butter) and eggs	0.7	0.5	0.7	0.6
Oils and fats	0.65	0.45	0.65	0.35
Average of all above				
Average of all above foods	0.45	0.3	0.45	0.3

Potatoes are also given a lower elasticity in Trinidad and Tobago and British Guiana than in the other territories, but other root vegetables are assumed to have a positive elasticity of 0.25 compared with the small negative elasticity assigned them in Jamaica. In the smaller islands it is assumed that the elasticity for potatoes is the same as in Jamaica, while that for other root vegetables is effectively equal to zero. For roots and starchy vegetables as a group the elasticities in terms of calories average out at about 0.3 in British Guiana and Trinidad and Tobago and 0.1 in the smaller islands compared with an overall figure of slightly less than zero for Jamaica.

There are a number of other differences between the territories in the elasticities assumed for different foods, all of which have again been arrived at mainly in the light of the differences in average 1958 consumption levels. Thus fresh vegetables and pulses are given a considerably lower elasticity in Trinidad and Tobago than elsewhere while fruit and butter were for a similar reason assumed to have relatively high elasticities in British Guiana. In both these territories the elasticities for fresh milk, cheese and vegetable oils were reduced below the Jamaica figures, as also were the Trinidad and Tobago values for butter and condensed milk. In the smaller islands a large part of the total consumption of meat appears to consist of salt pork, for which the elasticity seems likely to be small; this has the consequence of reducing the average elasticity for all meat in terms of calories below the comparable average for the other territories.

The approximate average elasticities for the different territories in terms of calories, weighted in accordance with the estimated calorie values of 1958 consumption per capita, are shown for the major food groups in Table 3.4.ii. Overall average income elasticities in terms of calories have been calculated by F.A.O. for a large number of other areas and published in the report already referred to. 3/ These calculations give, for example, averages of 0.30 for Mexico, 0.40 for Africa and the Near East (excluding South Africa) and 0.62 for Asia and the Far East (excluding Japan). As shown by the table, the averages for the West Indies work out at about 0.45 for Jamaica and the smaller islands and 0.3 for Trinidad and Tobago and British Guiana. If all the West Indian territories are grouped together the combined average comes to about 0.4.

3/ Cited in footnote 2, chapter 3, part three.

Chapter 5

PROJECTIONS OF FINAL DEMANDS

With the elasticities estimated as described, and the data on expected growth of income and population as visualised in the long-term economic projections, the final demands may now be projected to 1975.

The relevant data of growth for the various territories are given in Table 3. 5. i.

Table 3. 5. i

Growth of income and population, by territories
(Values at 1958 prices)

Item	Unit	1958	1965	1970	1975
Jamaica					
National Income	J£1,000	177,265	249,916	318,787	386,639
Population	no.	1,563,100	1,744,548	1,886,683	2,040,398
National income per capita	J£	113	143	169	189
Do.	index	100.0	126.5	149.6	167.3
Trinidad and Tobago					
Consumption by persons	BWI$1,000	459,000	800,800	1,013,900	1,223,500
Population	no.	788,600	953,290	1,097,600	1,263,800
Consumption per capita	BWI$	582	840	924	968
Do.	index	110.0	144.3	158.7	166.3
Leeward Islands, Windward Islands and Barbados					
Consumption by persons	BWI$1,000	197,189	255,904	310,482	368,470
Population	no.	650,710	719,937	774,031	832,237
Consumption per capita	BWI$	303	355	401	443
Do.	index	100.0	117.2	132.3	146.2
British Guiana					
Consumption by persons	BWI$1,000	172,119	222,969	258,245	298,732
Population (incl.Amerindians)	no.	527,802	646,530	744,400	858,340
Consumption per capita	BWI$	326	345	347	348
Do.	index	100.0	105.8	106.4	106.7

For the estimation of demand, the suitable index for Jamaica has been considered to be the per capita national income. For the other territories (Trinidad and Tobago; the Leeward Islands, Windward Islands and Barbados; and British Guiana) the index used was per capita consumption expenditure. Although consumption expenditure is supposed to have a constant relationship with the growth of national income in general, we have considered this relation not to be true for these three territories because of the unbalanced structure of their economies.

The details of food consumed per capita and its calorie contents are shown for each of the territories in Tables 7a to 7d. Protein and fat consumption is shown in Table 8 for Jamaica only. Summary Table 3.5.ii, showing the per capita consumption per day of calorie, protein and fat, by food groups, will be useful for comparison of food consumption in the various territories. The calorie content of food in 1958 was highest in Trinidad and Tobago, and British Guiana. Although Jamaica had a higher per capita income in 1958 than British Guiana, the calorie content of Jamaican food consumption was lower than that of British Guiana. This is presumably because expenditures on food have not been much different in both territories in spite of large differences in income, and furthermore, the income distribution in Jamaica may be considered as having a significantly higher range than in British Guiana. However, as a result of future economic growth in the other territories, by 1957 British Guiana will have the lowest calorie consumption. Thus, it is estimated that the calories will increase from 2,111 in 1958 to 2,635 by 1975 in Jamaica, 2,533 to 3,024 in Trinidad and Tobago, 2,040 to 2,455 in the Leeward Islands, the Windward Islands and Barbados, and 2,200 to 2,254 in British Guiana.

Protein and fat contents of food have been estimated for Jamaica only. It is estimated that the consumption of protein per day will go up from about 56 grams in 1958 to about 70 grams by 1975, and the consumption of about 34 grams of fat in 1958 will increase to about 47 grams by 1975. The protein and fat consumptions in other territories will also be about the same since major sources of protein by food groups are starchy foods, meat and fish, and those of fat are starchy foods, meat, fish, milk and oils, etc. Fruits are also an important source for protein and fat, but the consumption of fruits differs widely among the territories. However, the presence of more starchy foods and oils and fats in the food consumption of other territories will offset the lower consumption of fruits, sugar and eggs, and thus protein and fat consumption will be comparable with that of Jamaica.

Thus, the nutritional value of food consumption in these territories does compare favourably with other countries having similar income and climatic conditions, etc. It may also be noted that the above analysis is based on main food items only, and estimates of tea, coffee, cocoa, and alcoholic and non-alcoholic beverages could not be considered in our study. The inclusion of these items will increase the calorie content to some extent and present a more favourable picture.

Table 3. 5. ii

Consumption per capita per day: Calorie, protein and fat content, by food groups

Territory and year	Cereal	Sugar	Roots and starchy veg.	Veg. and pulses	Fruit	Meat	Fish	Milk	Eggs	Oils and fats	Total
						Calories					
Jamaica:											
1958	766.100	362.900	243.890	47.976	228.159	83.850	56.150	111.770	16.770	193.020	2,110.585
1965	849.336	397.020	243.478	54.187	263.296	101.024	62.115	126.880	22.290	222.370	2,341.996
1970	907.987	421.327	243.408	58.652	288.355	113.364	66.468	137.632	26.228	243.385	2,506.806
1975	947.575	437.657	243.288	61.585	305.118	121.558	69.320	162.629	28.861	257.340	2,634.931
Trinidad and Tobago											
1958	1,255.215	280.870	146.902	151.382	118.803	94.480	37.505	144.910	9.726	292.719	2,532.512
1965	1,394.273	322.158	164.234	166.382	142.801	122.973	45.081	167.897	14.715	340.040	2,880.554
1970	1,437.138	332.831	168.654	170.126	148.984	130.371	47.031	171.928	16.019	352.282	2,975.364
1975	1,455.665	337.887	170.834	172.072	154.306	134.005	48.007	176.830	16.651	358.097	3,024.354
Leeward Islands, Windward Islands and Barbados:											
1958	777.359	373.333	173.601	42.136	103.216	125.155	68.513	106.138	14.671	256.329	2,040.451
1965	851.131	396.853	175.342	45.477	147.984	136.078	81.465	117.248	17.928	282.308	2,251.814
1970	907.730	415.146	176.676	48.059	122.386	144.394	85.280	125.764	20.422	302.241	2,348.098
1975	954.592	430.080	177.774	50.173	129.225	151.264	88.412	132.774	22.476	318.639	2,455.109
British Guiana:											
1958	1,123.383	298.580	83.841	75.789	18.634	74.158	41.632	114.968	5.743	363.612	2,200.340
1965	1,144.181	305.447	85.467	77.593	19.472	77.219	42.838	118.460	6.260	370.458	2,247.395
1970	1,146.493	306.044	85.667	77.752	19.566	77.536	42.951	118.854	6.312	371.238	2,252.413
1975	1,147.416	306.343	85.699	77.837	19.603	77.661	43.016	119.013	6.341	371.290	2,254.219
						Protein (grams)					
Jamaica:											
1958	22.630	1.020	4.460	3.045	3.218	6.650	8.402	5.187	1.280	.058	55.950
1965	25.112	1.116	4.442	3.439	3.712	8.083	8.896	5.929	1.701	.068	62.498
1970	26.860	1.184	4.432	3.722	4.065	9.102	9.252	6.456	2.002	.075	67.150
1975	28.040	1.230	4.426	3.909	4.302	9.782	9.485	6.809	2.203	.080	70.266
						Fat (grams)					
Jamaica:											
1958	3.590	.080	.780	.601	5.874	6.470	2.221	3.625	1.210	9.830	34.281
1965	3.963	.088	.774	.679	6.773	7.795	2.649	4.197	1.608	11.458	39.984
1970	4.224	.093	.772	.734	7.416	8.726	2.955	4.603	1.892	12.623	44.038
1975	4.401	.096	.769	.771	7.844	9.353	3.159	4.875	2.082	13.397	46.747

Part Four

PROJECTIONS OF SUPPLY

Chapter 1

LAND UTILISATION IN THE WEST INDIES

Basic resources

Conditions of supply in any country are determined by the basic resource pattern. Local resources of land and labour may not be limiting factors in countries where there are untapped and unexploited areas of land and local labour supplies. In such countries capital is likely to be the main limiting factor. In the West Indies, both land and capital are limiting factors and, although there has been a plentiful labour supply in most territories, there is now evidence of regional labour shortages in some small islands and rural areas caused by migration. The resource pattern is therefore somewhat complex. In general however, the economies can be characterized by the statement that there is a pressure of population on land resources, with consequent pressures to increase industrialization, to increase the net output from agriculture and to increase emigration. The island of Dominica in the Windward Islands and the hinterland of British Guiana are the only areas in which this generalization is not applicable.

The limitation of land resources has in a sense simplified our problems of making projections. Generally speaking, there are known limits to the quantities of land suitable for any one commodity, and acreage can only be increased by substitution. Although increased prices could make possible the cultivation of certain lands not now cultivated, this could only relate to certain commodities and to limited areas. Thus land must impose early limits in total acreage cultivated. Even if we include the island of Dominica and the British Guianese hinterland, it does not materially expand the extensive frontier since most of the land in the former is too rugged and in the latter of too low soil quality to represent anything approaching large unexploited land resources.

Existing land use pattern

Table 9a indicates the land use pattern in the West Indies. These figures were derived from censuses and surveys taken at various dates for certain territories. The information has not been brought up to date since the years indicated. An agricultural census is now in process of tabulation and although no firm information is available, there are preliminary indications that a number of small farms may have gone out of production, owing probably to migration. Nevertheless, the acreage under sugar and other cash crops is known to have increased, so that even if food crop acreages have declined, we do not expect to find a decrease either in total crop land, or in land area under farms.

Table 9a shows that land in farms as a proportion of total land area varied from 5.5% in British Guiana (1952) to 91.7% in Barbados (1946). British Guiana however, is exceptional,

and without that country, Dominica with 37.8% had the lowest proportion of its land area in farms. Trinidad and Tobago's figure of 41.7% was probably significantly influenced by the considerable areas held as mining leases.

Using the 1960 census population figures, if we measure population density by relating population to total land, Barbados is by far the most densely populated area with .5 acre per capita, Grenada is next with .9 acre per capita, and the least populated areas are Dominica with 3.3 acres per capita, and, on a different order of magnitude, British Guiana with 95.1 acres per capita. If, however, we measure population density in terms of land in farms, while Barbados is still the most densely populated, St. Vincent, Trinidad and Tobago, and St. Kitts-Nevis-Anguilla all appear to be more heavily populated than Grenada. In terms of crop land per capita, Dominica is the least densely populated, followed by British Guiana, Montserrat and Grenada, all in second place (Table 9c).

These comparisons are of interest because they lead to the question of how far the total land area in farms represents the total land area suitable for farming and how far the total land area in crops represents the total of land suitable for crops. In other words, how much of unused land is suitable for bringing into farm occupancy and how much land not now under crops could be used for crops?

One would expect, in an area where land has been the main limiting factor, to find a fairly economic use of this resource. Only Barbados stands out as a model in this respect; in most other territories there is little doubt that some expansion could take place. Nevertheless it is perfectly evident that such expansion, whether of total farm area or of total crop land must be of a marginal nature as compared with current totals; only in Dominica and British Guiana is significant expansion likely to be possible and this is unlikely to exceed more than 20% of the current totals within the period with which we are concerned.

The figures in Table 9a indicate that a sizeable part (44% without British Guiana and 90% with British Guiana) of the land area is not in farm occupation. In British Guiana this low occupation ratio is of course related to the usual problems of developing a continental area of tropical bush with low soil quality and poor drainage. In the island territories, however, the reason for a fairly low occupancy is the rugged nature of the terrain. The island with the least rugged land surface is Barbados and here the ratio of farm area to total area is high. Dominica is by far the most rugged and, although there is more unused land potential in Dominica than in the other Lesser Antilles, this territory must always show a low occupancy rate. The figures for Antigua are biased by the inclusion of Barbuda, a dry uncultivable island with a low population and fairly large land area. The Trinidad figures are also biased by the inclusion of Tobago and by the high percentage of land tied up in oil leases and in swampland. Nevertheless Antigua on its own and Trinidad do not have the same problems of ruggedness that Jamaica, St. Vincent, Dominica, Grenada and to some extent, St. Lucia and Montserrat have. Grenada comes out rather well in all these comparisons since it appears to be, if anything, rather more rugged than St. Lucia and at least as rugged as St. Vincent, but has a higher proportion of its land in crops. This fact may have some significance in that it may indicate that not only Dominica but St. Lucia and St. Vincent have more occupiable land than their topography would indicate. However, we feel that such possible increases are small except in Dominica. We feel, moreover, that higher prices for cash crops would not necessarily lead to cultivation of additional acreage unless such additional acreages are as accessible and as simple to cultivate as those now

in production. Some land may be made accessible by new roads. Where this is impossible however, we do not consider that, within the income structure we have postulated, farmers will increase cultivation of inaccessible patches of soil in the mountains in Jamaica or in the Windward Islands, such as has happened in Grenada's recent past.

Projected land use pattern

Table 9a shows the present land cultivation pattern as observed at the most recent census dates. In Tables 9b and 9d these areas have been projected on the following assumptions.

The total acreage of crop land is derived from aggregating the average projections made for the individual crops, which is explained in the next chapter.

The acreage under pasture is derived also in relation to projections of livestock numbers, although only for improved pasture can these be considered a fairly exact relationship.

In Jamaica, we have assumed some increase in the land in farms between 1958 and 1965. On the other hand, it is suspected that, due to migration, marginal land may be going out of cultivation; we do not predict much if any increase in total land in farms between 1965 and 1975. We do, however, consider there will be some increase in the ratio of pasture to woodland and an even bigger increase in the proportion of pasture that is improved.

Since so much land in Trinidad and Tobago is tied up in oil leases and crown forests, it is not unreasonable to suppose some increase in the area of farmland in the period. We consider, however, that after 1970 any increase in the area of farms is likely to be associated with increased pasture rather than crop land. The increases are not expected to be large.

For the Leeward Islands, Windward Islands, and Barbados, we have predicted small increases in farm areas since there is some room for increased farm use of land in Dominica. If the hoped-for expansion in bananas takes place, it is expected that new areas will come into use, although a considerable part of the expanded acreage would probably come from land already in farms but not cultivated. Although we expect some increases in pasture land improvement, it appears that in the small islands the biggest part of the increase will be in crop land.

In British Guiana we have assumed a rather greater increase in the farm area. This follows from known plans to increase rice acreage and to bring unoccupied land into rice cultivation. We expect also that cattle ranching may spread to some unoccupied land, thus increasing the area of farms further, although improved grasses may lead to intensive rather than extensive expansion of this industry. The assumptions mainly based on our projections for rice, sugar and cattle cultivation indicate an increase of farm land from 5% to 7% of total land area, and the proportion of crop land to total farm land is assumed to increase from 11% to 14%.

We should like to think that future increases in production will come from a better utilization of land rather than bringing of more marginal land into cultivation. Already one

finds examples of bananas and other crops being grown on land which can hardly be classed as cultivable, and which will not be cultivable after a few years exposure to wind and rain with the natural vegetation removed. Land tenure problems are among the many problems facing proper land use. Some of the better uncultivated lands are owned by estates or by small owners who do not utilise them. There is little doubt that a proper scientific approach to the land use problem would advocate intensifying production and possibly reducing the actual area of crop land. Due partly to institutional factors, we have not been able to predict a very significant move in this direction in this period, although some increases in yields are projected. (See chapter 3.)

Chapter 2

SCALE OF PRODUCTION OF AGRICULTURAL COMMODITIES

In the last section we discussed the general pattern of land use in the West Indies as we believe it to have been in 1958 and as we expect it to be if our projections are a fair picture of the future. Tables 9a to 9d illustrate this broad land use pattern, but in these tables we show crop land as a total. In this chapter we shall discuss the breakdown of crop land into the various crops and also discuss some figures for populations of commercial trees and livestock. Following this discussion of scale of production, we shall in the next chapter discuss intensity of production and in the following one, total supply. It should be noted that the tables relevant to this and the following two chapters, Tables 11 to 20, are arranged under commodities. This facilitates the assessment of the scale effect and the intensity effect on total supply.

First, however, we draw attention to Tables 10a—d, which show how the total crop land in each territory is made up. These totals are derived from already published censuses and surveys (see Refs. G1 to G4) and from compilation of published data made at the Institute of Social and Economic Research. Where we have obtained more up-to-date figures in the course of making commodity studies, we have substituted these.

It will be noted that the figure of total crop land does not agree with the aggregated acreages for the individual crops. Crop land is defined as: "Land under tree crops and medium and short term crops, land in process of preparation for crops or normally cropped but fallow."

In the Jamaica figures we find that the aggregate of land under the various crops is greater than the total of crop land. This is mainly because there is extensive intercropping in coffee, cocoa, bananas, coconuts and more particularly among roots and vegetables and fruits mainly consumed domestically. In Trinidad and Tobago there is less intercropping so that the difference is smaller. In British Guiana, known totals for rice and sugar are given for past years, while data for other crops was taken from the 1952 census in which a reconciliation had already been made.

For the Windward Islands, Leeward Islands and Barbados we find that the aggregate acreage of individual crops is lower, not higher, than the figure of total crop land, in spite of the fact that some intercropping takes place (although not as extensively as in Jamaica). The difference in those totals is thought to be due mainly to the fact that the 1956-58 sample surveys of the Windward Islands omitted some crop land then in fallows, and may have omitted a number of small lots under crops. These differences underline some of the

problems associated with using available source material. Although we get this discrepancy in the total, some figures of individual crops (for instance, rice, sugar, cotton and banana) are probably rather more accurate than those for food crops and tree crops.

Starting with sugar cane, we shall discuss the sources and assumptions on which the figures relating to scale of production are based.

The main sources of data on sugar cane are the British West Indies Sugar Association and Sugar Manufacturers' Associations in the various territories, and also information from agricultural departments. Although of rather greater reliability than information relating to most crops, sugar information is by no means perfect, particularly in relation to the Windward Islands where there are no large sugar exporting industries and because much of the crop is produced by peasants.

Sugar cane acreage can be expressed in two ways, either as acreage cultivated or as acreage reaped. Sugar cane takes at least 15 months to mature so that of the overall acreage, only cane that is ripe will be cut. The acreage reaped is thus usually slightly lower than the acreage cultivated but is not usually lower than 90% or higher than 96% of the cultivated acreage. The amount of cane that is uncut at the end of a season due to immaturity may be the result of a deliberate planting policy; but in recent years, many acres of mature cane have remained uncut because of strikes, labour disputes, incendiarism, and in some cases, acute seasonal and regional shortages of labour which could not always be cured by calling on labour from other more populous islands or areas. In one or two cases, factory breakdowns have been to blame.

In Table 11a, we have shown acreages reaped for the period 1940-60 as this figure is considered to be more reliable than the figure for acreages cultivated. It will be noted that the acreage increased from a total of 231,000 acres in 1940 to 443,747 in 1960. The greatest increase was in Jamaica—44,484 to 186,787 acres.

Several estimates of future sugar cane production have been made for this study and account has been taken both of the trend since 1940 and the trend since 1950 which is less steep than the former. Consideration has been given to the limitations on good sugar land which have already slowed down expansion in such territories as Barbados and St. Kitts and are likely to be more important in other territories in the future than they have been in the past. The projections shown in Table 11b are thus based on a rate of expansion of acreages of 5% between 1958 and 1965, 3% between 1965 and 1970 and 1% between 1970 and 1975. In Table 11c acreage reaped is taken at 95% of the total under cane for projection 1, and 90% for projection 2.

As regards rice, no, or little expansion is seen in the acreage of the two smaller producers, Jamaica and Trinidad and Tobago, but in British Guiana, by far the largest producer, the expansion of the rice industry and its development as a major exporter are major policies of government and the industry. Three major development projects are underway which will bring new acreages into rice production. Programmes for the drainage of now unused land will eventually bring into cultivation an additional 100,000 acres for rice. Although there might be small increases or decreases in acreages of present small holders, it is evident that these are likely to be very marginal in comparison with the major schemes.

Although occupancy of these lands has already started, organisational difficulties such as lack of credit, housing, and the need for frequent cleaning may make the rate at which they are occupied slower than was at first expected. Thus the increase in acreages actually in production is projected as being quite gradual. Past increases in rice acreage are shown in Table 12a and the projections are shown in Table 12b.

We have shown past scale of production of bananas, by acreage over a past period in Table 13a and in Table 13b by the number of bearing roots in 1958, by farm size. The figures for the time series are felt to be of very dubious reliability. After careful consideration we have often had to select what we felt to be the best of several contradictory sources.

In banana production, both land and labour are seen as possible limits to acreage expansion. In Jamaica, the problem is reduced fertility, particularly on slopes where the natural vegetation has been removed and erosion has been permitted. This problem is also apparent in the Windward Islands, although in both Dominica and St. Lucia, due to land tenure problems, better banana land lies idle while inferior slopes are cultivated, and there is much room for expansion. Serious discussions have already been held regarding the start of an export industry in British Guiana. Here, land is likely to be plentiful, but we do not consider there is likely to be a major development in this period.

Naturally, at the present time, marketing problems tend to overcloud the future banana situation; nevertheless, we do not think land limitations are a negligible factor and have given the above considerations some weight in making supply projections.

Sea island cotton is grown only in the smaller islands, and although production is very small it is important in the economies of small islands such as Nevis and Montserrat. Table 14a shows the acreages under this crop in the West Indies since 1940. The assumptions underlying acreage projections shown in Table 14d are that in Antigua, only peasants will be operating towards the end of the period. The 1,200 acres still in production in 1974/75 is considerd to be land suitable for cotton only. In Montserrat, it is considered that 1,000 acres or so may be in production, in spite of emigration, because of limited feasibility of other crops. Similar limitations may apply in Nevis, but here it is thought other crops will win land from cotton. In St. Vincent it is thought that other crops will inevitably win land from cotton. Thus we conclude that this industry is likely to decline from about 6,112 acres in 1959/60 to about 4,200 in 1974/75.

If the acreage declines to this extent, it is also possible that sea island cotton might go out of production altogether since it can be spun only on certain spindles and it may be uneconomic for the processing to be continued if only a negligible quantity is produced.

Ascertaining the scale of production of citrus trees and coffee for this study has presented innumerable problems; many of these trees are grown in scattered plantings and cannot easily be enumerated. The acreage figures shown in Tables 10a to 10d are based on acreage equivalents estimated in some cases from source material which gives tree population only. The acreages have, in some cases, been estimated from conversion factors suggested by the Farmers Guide (Jamaica Agricultural Society) and from various agricultural ministries and departments.

Figures of tree population for citrus are shown in Table 15a. Since figures for acreages of both citrus and coffee are considered of dubious reliability, we have not detailed the projection any more than to present estimated acreages in Tables 10a to 10d; but we have presented detailed figures of final, total supplies for citrus (Table 15b) and coffee (Table 16).

For cocoa, estimates have been more easily obtained, since there have been major replanting schemes in all major producing territories which plan to replace all old planting with new clonal material. However, estimates going further back than 1958 are still of extremely dubious reliability. So we have not considered it relevant to include a past time series (Table 17a). The projections shown in Table 17b are based on the replanting programme. Estimates in more detailed form are shown in Tables 17c and 17d. Production from different aged trees, and acreage bearing at different dates can be derived from these tables.

For coconuts, as with other tree crops, acreages and figures of tree population are difficult to come by. To some extent, we have had to work backwards from known data regarding final tree yields and land use as between non-bearing and bearing trees to derive most of the information on scales of production so that our figures must be considered very provisional, particularly in respect to Trinidad and Tobago and Jamaica. There are very definite limits to land available for coconut cultivation in the West Indies since this crop will grow well only in fairly low lying, but well-drained land. Our projections of acreage are thus trends towards limits. In projecting production of copra, we fitted an asymptote curve of the type $y^c = k + a(b^x)$ with known acreage as the limiting factor. This was also a close fit with figures of copra production over the past decade. Of course, improvements in production per acre could alter this trend, but we have felt with most crops — perhaps more particularly with this one — that the land limitation is a real one within this period. Even in British Guiana, where a number of sand reefs could be used for coconut cultivation, the additional acreage possible is not high as most of the coastland has poor draining, unless artificially drained — usually not an economic proposition for coconut cultivation.

The figures for coconut acreage and tree population are shown for a base year and for 1965, 1970 and 1975 in Table 18b, and figures for past copra production in Table 18a.

No accurate figures exist to show past trends in acreage of domestic food crops. So much of these products is grown on small lots, not recorded in the 1943-46 census, that a comparison between figures at that census and later surveys is not valid. We believe however, that the acreage of root crops is declining in Jamaica and possibly also in other territories, and we attribute this partly to migration, partly to urbanisation and partly to the growth of banana and cocoa cultivation by peasants, particularly in the Windward Islands. Early and very provisional figures from the 1961 census also indicate that a number of small, mainly subsistence farms may have gone out of production in Jamaica due, no doubt, to migration, or in some cases to farmers finding employment in the mining industries.

We expect a continued decline in the acreage of roots and little change in the acreage of vegetables. The acreage of corn and pulses appears to have been declining in all areas since 1950 and we expect this trend to continue. Our conclusions are summarised in Table 19.

We should emphasize however, that we consider roots and vegetables may be fairly competitive with certain cash crops for land; thus price factors, which we shall discuss in a later section, may be more important than for products which have a more specialized land need.

Only marginal increases in acreage under tobacco are predicted because methods of cultivation and the cash return are making the crop generally uncompetitive with other crops (see Table 20).

The scale of production of crops is measured in acreage or tree population. In livestock production we have preferred to consider stock numbers of more relevance than acres under pasture (although with the development of greater acreage of improved pasture the concept of acreages and yield per acre becomes more meaningful). Totals of grassland improved and unimproved are, however, shown in Tables 9a and 9b.

Livestock numbers at specified censuses as compared with those at a later date appear in Table 21a, and projections of livestock numbers appear in Table 21b. Although there may be some difference in coverage among smaller farms, the comparisons are probably rather more valid than would be a similar comparison for crops, acreages or tree populations. Comparisons are not available for all territories because of the lack of data.

Cattle population increased in Jamaica, Montserrat, and Trinidad and Tobago, but appears to have remained unaltered or decreased slightly in other islands. The increase in Jamaica's herd, which is believed to be continuing, is largely a result of the developments in the beef industry pioneered by the mining and sugar companies. Since Jamaica's costs are too high at present to make exportations of beef feasible, Jamaican livestock populations are likely to be increased only in response to the local demand position, supply conditions permitting.

Certain limitations may, however, make supply lag behind demand. Natural rates of increase can only permit a growth in meat supplies of about 10% per annum unless new stock is introduced. The dairy industry, moreover, has been thwarted in its development by marketing, management and organisational problems, and if these should be overcome, supplies of beef might show no increase temporarily while changes in the structure of the cattle population take place.

We consider that in all territories there will be a relative increase in dairy herds as compared with beef herds. We expect, however, that many islands, particularly those in which crop cultivation has been affected by migration, will expand meat production. Many of the small islands already have a high cattle population, however, and indications are that increases in production must come from livestock improvement rather than more cattle.

In British Guiana, where grazing is very extensive, we expect the growth of numbers to be limited to some extent by reproduction rates and to some extent by lack of capital for developing new areas. Here again we expect that production increases must come rather from pasture and livestock improvement, than from greater numbers of livestock.

Figures of small stock population are not reliable. We believe that the goat population would decline if better methods of agriculture and husbandry were practised since goats are destructive to economic plants and must be fenced out of improved pasture. It is almost certain that goats cause economic losses almost equal to the value of their increment to the net product although they are of undoubted value to inhabitants of arid, non-productive regions. Although we can only go by guesswork based on observation, we believe the goat population will tend to decline as higher standards of living are reached.

Pigs, like goats, are at present mainly scavengers in the West Indies, living on what they can find. However, more farmers are rearing pigs as a farm activity. They are generally fed on coconut meal when feeding takes place, so that it is believed that their expansion may be partially related to growth of the coconut industry. A recent report on the pig industry recommended that it would be more economic to import feed and export coconut meal, but it is considered doubtful that this change in the economic pattern of the industry will take place.

No section of agriculture in the West Indies has been revolutionized so much as has the poultry and egg industry in the last decade. Here a major changeover has occurred from the backyard poultry system to proper methods of feeding, rearing and housing. Unfortunately, no comparable figures are available in two periods for Jamaica, Trinidad and Tobago, and British Guiana and we have not found it possible to make an accurate assessment of the extent to which scale of production, as compared with yields, is responsible for the vast increase in supplies both of poultry meat and eggs that has taken place over this period.

Chapter 3

THE EFFECT OF CHANGES IN INTENSITY OF PRODUCTION ON TOTAL SUPPLY

In this chapter we shall consider the influence that changes in intensity of production have had and are likely to have on supply.

In measuring intensity of production we have related a quantity of product to land area, as for instance, tons of cane per acre, or a quantity to unit of production such as coconuts per tree, or pounds of meat per carcass, milk per cow, and so on. In this section we discuss the quantitative results of our conclusions on yields. In chapters 5 and 6 we discuss qualitatively the conditions which influence yields.

In measuring the influence of yields in total product we wish to abstract this from the effect of scale on product. One method of doing this is to relate the yields of a base period to the acreage of a later period and relate the total product that results to that which actually occurred in later years. This can be expressed by the equation

$$100 = \frac{Q_n - R_n \frac{Q_o}{R_o}}{Q_n} = X \text{ Yield factor}$$

where $\frac{Q_o}{R_o}$ = Base period yield, R_n = Acreage at period n and Q_n = Supply at period n.

If we use this equation to relate total production of milled sugar, we find that, comparing the period 1940-49 with the period 1950-59, the product for Jamaica in the second period is 5.5% lower than it would have been with the yields of the first period; that for Trinidad and Tobago it is 20.3% higher; for the Leeward Islands, Windward Islands and Barbados it is 23% higher; and for British Guiana 17.5% higher.

Changes in quantities of milled sugar are due mainly to changes in yields of cane per acre. Factory efficiency and the sucrose content of cane must also influence the quantity (see discussion of processing—chapter 6). Yields of cane per acre for the period 1950-60 are shown in Table 11d. Production of sugar, 1940-60 is shown in Table 11h.

We have first projected yields of cane per acre; these are shown in Table 11e. In projecting these yields, various considerations have been taken into account which are described in chapters 5 and 6.

If we apply the yield factor to the total product of cane and the acreage under cane for 1965, 1970 and 1975, and compare it with the period 1950-59, we find that of the total supply of sugar cane in 1975, 32% is due to a projected increase in yields in Jamaica; 13% in Trinidad and Tobago, 7% in the Leeward Islands, Windward Islands and Barbados, and 5% in British Guiana. The recovery of milled sugar from sugar cane is projected at the same rate as that for 1940-60 (see Table 11f). Table 11i shows projections of sugar production.

For bananas, yields can be expressed in pounds which relate to stems per root or stems per acre (which is also of course a function of roots per acre). Table 13c indicates that there is a great variation between these factors in different territories. Since the exact influence of the root/stem ratio as compared with the root/acre ratio on actual yields cannot easily be predicted, we have simply projected the yield in terms of pounds and stems per acre. Applying our yield factor to total projected production and acreage, we estimate that in Jamaica, Trinidad and Tobago, and Grenada there will be no change in yield; in Dominica and St. Vincent, 5% of the additional production in 1975 will be due to increases in yield and in St. Lucia 3% will be due to changes in yields. (See Table 13e.) See Table 13d for projected acreages of bananas.

Rice yields for the periods 1951-55 and 1956-60, and projected for the years 1965, 1970 and 1975 are shown in Table 12c. The yield factor between the 1956-60 average and 1975 is 27% in Jamaica, 14% in Trinidad and Tobago and 14% in British Guiana. Projections of rice production are shown in Table 12d.

Yields for sea island cotton during the period 1940-60 are shown in Table 14b. It will be noted that yields per acre increased in the area as a whole between the 1940's and the 1950's, although they did not increase in all territories. Projected changes in yields for the years 1965, 1970 and 1975 are slightly higher than for the year 1960, but rather below the average of 1955-60. This means that changes in yields will have a negligible effect (Table 14e).

Information on citrus and coffee, roots, vegetables, corn and pulses has been of so dubious a nature that we have preferred to make projections in terms of total supply only. Although approximate projections of acreages are included in Tables 10a to 10d, so as to indicate roughly the changes in land use, it is not felt that they are reliable enough to use as a basis for projection of yields.

For cocoa, however, more reliable information exists on account of the new planting programme. Because of this programme, yield factors are very important in local supply and, comparing the 1975 projected supply with the 1960 supply, we find that in Jamaica 2.3% of the increased supply (expressed as yields per bearing acre) is a result of yield factors, in Trinidad and Tobago 21.6%, and in Grenada 34%.

Some figures showing estimates of coconut yields are shown in Table 18b. There is a complete lack of reliable information on past yields per acre or per palm. The yield factor, in terms of nuts per acre is approximately 10% in Jamaica and Trinidad and Tobago, and 12% in other territories. But, data are not considered reliable enough to estimate effects of the bearing/non-bearing ratio on yields in the future.

No information is available on the yield factor in tobacco but the yield in Jamaica in the past has been about 410 pounds per acre—about half the world average.

There are a number of methods of measuring cattle yields; one can measure return in meat per acre, meat per animal slaughtered and meat produced in relation to total cattle population. Figures for slaughterings are not complete because only registered slaughterings are available. There seems little case for reckoning returns per acre in an area where so little grassland has been improved. We have taken as a crude measure the meat per head of the total cattle population and quarts of milk per head of the population of cows of two years and over.

These estimates show little change in the relationship between meat and cattle population. The reason for this, however, is partly that we have projected an increase in the proportion of cows to total cattle for most areas. In terms of yields of meat per acre of pasture, we expect some increase as more improved pasture comes into being, but we cannot express the yield factor quantitatively. The relationship between cow numbers and total milk supplies is more exact. Here the yield factor as between 1958 and 1975 is estimated at 18.7% in Jamaica, 4.8% in Trinidad and Tobago, 10.4% in the Leeward Islands, Windward Islands and Barbados and 9.4% in British Guiana.

Chapter 4

THE ESTIMATION OF TOTAL LOCALLY PRODUCED SUPPLIES OF COMMODITIES

We have endeavoured to isolate the factors influencing yields and total acreage in the base period to ascertain the importance of each in total supply. It should be noted however that many of our source data gave total production as a more reliable figure with rather less reliable information on yields and acreages. However, having tried to isolate the scale factor from the intensity factor in the base period, we have for most products projected these two factors and derived total projected supply from these. It should be emphasized that the supply projections were drawn up independently of the demand projections. Although in the case of subsistence or non-cash consumption, reconciliation had, of course, to be made at an early phase of the study.

For sugar we present final supply tables for milled sugar. The totals for cane can be derived from tables of yields and acreages (Tables 11e and 11f). It is the final product, milled sugar, with which we shall mainly be concerned in our comparison of demand and supply.

Final productions of rough rice and milled rice are shown in Table 12a and final projections are shown mainly in the form of milled rice, with milling rates indicated (Table 12c). Total production figures for bananas for a past period are not very reliable but we show projections in Table 13e. For sea island cotton, past trends in production are shown in Table 14c and projections of production in Table 14f. For tree crops, data on past production is extremely scant; we have, however, shown some figures for citrus in Table 15b, coffee in 16, cocoa in 17a, and copra in 18a. Total production figures for the projections are shown in rather more detail for cocoa, for which crop the new planting programme has enabled better estimates to be made than for other tree crops. For vegetables and roots, figures of acreages and yields were virtually non-existent and our estimates are based much more on our assessment of the total products. (See Table 19.) Naturally, estimates of the acreage and yields were used in this assessment, but for the base year at any rate, estimates of the total supply were considered more reliable than estimates of average equivalents.

For livestock products also (see Table 21c), the base year estimates depended on assessments made of supplies coming forward rather than on assessments of numbers and yields. For milk, for instance, the total supplies to households and to the condensery were the basis for the estimates. Data on yields were fragmentary, but of course yields and stock numbers were taken into account when projecting future supplies.

Then the method of estimating future supplies depended very much on the availability of different types of source data. In some cases we were able to work purely from independent projections made of yields and the scale of production (acreages, tree numbers, livestock numbers, etc.), while in others we were inclined more to picture local supply itself, as the first assessments have given due weight to what fragmentary data were available on the factors influencing supply.

Chapter 5

FACTORS INFLUENCING YIELDS AND PRODUCTION: ECONOMICS AND FARM ORGANISATION

Changes in growers' prices 1955-60

Comparative prices cannot mean a great deal in areas where the general price levels are different. However, the figures in Table 4.5.i below do give some indications of recent changes in prices paid to growers of sugar cane.

Table 4.5.i

Prices per ton paid to farmers for sugar cane by territories, 1955 through 1959

Territory	1955	1956	1957	1958	1959
			BWI$		
Jamaica	12.44	12.78	14.68	13.16	12.66
Trinidad and Tobago	11.97	10.98	14.53	11.44	12.30
Antigua	11.65	11.30	14.61	11.00	13.20
St. Kitts	12.80	12.21	16.54	13.01	13.20
Barbados	15.17	14.68	17.55	14.87	15.80
British Guiana	8.94	9.48	11.05	9.00	8.70

Source: British West Indies Sugar Association.

Prices for cane vary to some extent with the sucrose content of the cane and also are influenced by the average price per ton of sugar exported, which itself may depend on how much has to be sold outside the negotiated price quota. It will be noted that 1957 prices were highest but that in most territories 1959 prices were higher than those of 1958.

If the production of cane reaches the figure which we have predicted we expect an increased proportion of total sugar will be sold at prices below the negotiated price. However, the effect of this is likely to influence prices by approximately 8% to 10% in any one year.

In British Guiana the price of higher quality rice has risen consistently since 1955 as is shown in Table 4.5.ii.

Table 4.5.ii

British Guiana: Prices per 180 pound bag of rice, 1955 through 1960

Year	Export types f.o.b.			Local
	Supergrade	First	Second	Brown A
	BWI$			
1955	19.65	18.75	17.85	17.05
1956	19.65	18.75	17.85	17.05
1957	19.50	17.85	16.05	17.05
1958	21.30	19.20	16.95	18.80
1959	21.30	19.20	16.95	18.80
1960	21.30	19.20	16.95	18.80

Source: 1. Reports of British Guiana Rice Marketing Board 1950-51 to 1960-61.
2. Reports of the Rice Conferences.

The price of rough rice paid to growers who sold rough rice directly to the mills increased from $3.25 per bag of 140 lbs. in 1950 to $6.80 per bag in 1961. The average price paid to growers who sell milled rice rather than rough rice has depended on changes in the export price but, in general, has followed the trend shown in Table 4.5.ii.

In Jamaica, growers of bananas are paid on the basis of the count bunch but in all other areas by weight, which makes comparison difficult. Growers in all territories are paid on the basis of actual realisation, which final price is the true grower's price. There are seasonal variations in banana prices, but Table 4.5.iii gives the average prices in Jamaica and the Windward Islands over the period 1955-60.

Table 4.5.iii

Annual average prices of bananas in Jamaica and the Windward Islands, 1955 through 1960

Year	Jamaica greenboat, J £ per ton	Jamaica growers, shillings per count bunch	Windward Islands growers, cents per lb.
1955	£ 74.8.0	9/-	4.75
1956	£ 73.1.0	9/2	5.00
1957	£ 77.3.0	9/6	5.00
1958	£ 74.1.0	9/5	4.00
1959	£ 68.3.9	8/10	4.75
1960	£ 66.2.10	8/8	4.00

Source: Data and material developed during the study and other available data.

This indicates some decline in growers' prices following a decline in the Jamaica green-boat, or export, price, which is also used as an indicator for deciding growers' prices in the Windward Islands.

Information on price changes is not easily available for all products, but Table 4.5.iv shows some recent changes in prices which will indicate the general trends for the various commodities.

Table 4.5.iv

Prices of various commodities, 1954-55 through 1959-60

Year	Growers' prices		F.O.B. prices	
	Coffee, Jamaica, price per pound	Cocoa, Jamaica, shillings per 100 pounds	Copra, West Indies area export price, BWI $ per ton	Cotton, MSI 2/ Antigua, BWI cents per pound clean lint
1954/55	2s. 5d.	254	300	106—112
1955/56	2s. 5½d.	154	300	100—106
1956/57	2s. 6d.	129	300	110—116
1957/58	2s. 5d.	104	300	111—117
1958/59	2s. 1¾d.	154	320	99—105
1959/60	1s. 9½d.	154	340	84— 90

1/ Rates for smaller quantities than 100 pounds are slightly less.
2/ MSI (Montserrat Sea Island).

Source: Data and material developed during the study and other available data.

When we summarise all the trends in export crops we cannot but conclude that there has been a slight decrease in all products. The two crops in which there have been price increases, copra and rice, are those for which the export market is mainly or wholly a regional one. All other prices reflect the general world situation of falling commodity prices since 1955. However, due mainly to established markets and trading agreements, price fluctuations are rather less than would be exhibited in the world market over the same period.

Turning now to domestic food crops and livestock products, we find that information on growers' prices is fragmentary. Although movements in retail prices are not exactly the same as movements in growers' prices, the broad trend is the same.

The retail prices of all foods were about 10% lower in the country although Irish potatoes and tomatoes were frequently higher. The retail price index for all food items increased in Jamaica from 100 in December 1955 to 103.5 in December 1956, 105.9 in December 1957, 109.6 in December 1958, 112 in December 1959, and 122 in December 1960. Table 4.5.v shows retail prices for selected foodstuffs in Kingston for various periods from 1955 to 1961.

Table 4.5.v

Retail prices for selected foodstuffs in Kingston, Jamaica, for selected periods

Commodity	1955 Dec. av.	1959 annual av.	1960 annual av.	1961 annual av.
	Pence	Pence	Pence	Pence
Roots, yams, lb.	5.17	6.14	6.50	6.92
Sweet potatoes, lb.	4.00	4.62	4.88	5.15
Irish potatoes, lb.	4.75	6.00	6.60	6.00
Pulses, red peas, pt.	31.50	33.75	33.00	33.56
Plantains, each	3.10	5.18	4.90	5.24
Cornmeal, lb.	4.50	4.50	4.50	4.50
Oranges, doz.	12.72	21.55	19.33	25.41
Tomatoes, salad, lb.	13.08	11.20	12.10	12.00
Beef rib roast, lb.	27.00	33.00	33.00	45.33
Mutton, lb.	30.00	41.00	38.00	36.10
Pork, lb.	24.00	31.00	30.00	31.50
Fish, snapper, lb.	26.00	30.00	27.60	29.00

Source: Data and material developed during the study and other available data.

In Jamaica, beef prices show the most marked increase. The price of this product was controlled between 1940 and 1960 although between 1950 and 1960 the controlled price increased from J£4.15.0. per 100 pounds liveweight to J£7 per 100 pounds liveweight, or or 180s. per 100 pounds w.d.c. 1/ After decontrol the price increased to about 240s. per 100 pounds w.d.c. 1/ It is too early to say what effect the decontrol has had on supplies since slaughterings in 1961 must to some extent have been the result of decisions made before price control. Also the number of legal as against total slaughterings would increase after decontrol anyway. Supplies were increasing in 1962 and the price appeared to be stabilising, averaging 48 J pence per pound in the first six months of 1962, which would indicate that a new equilibrium is being established.

In Trinidad and Tobago, the food section in the retail price index increased from 100 in January 1952 to 126.5 in December 1955 to 138.9 in December 1959. Noting some individual prices, it is observed that fresh beef increased from 77.9 cents per pound in 1955 to 86.2 cents per pound in 1959, fresh pork from 77.3 cents to 83.6 cents per pound, sweet potatoes from 9.7 cents to 10.3 cents per pound, yams from 7.1 cents to 10.6 cents per pound and tomatoes from 31.1 cents to 36 cents per pound. Trinidad and Tobago imports much of its sweet potatoes from St. Vincent and there is little doubt that competition from banana, and also emigration of growers has reduced the supply and increased prices.

1/ Warm dressed carcass.

The shape of the supply-price function

While in some underdeveloped economies with a large peasant sector, aggregate agricultural supply functions are thought to be negatively rather than positively price elastic, recent trends in the West Indies indicate that the supply price function for all agricultural commodities is generally positively elastic, and not least so in areas of peasant production. In fact there are sound indications that peasant responses to price increases up to 1957 were greater than those of estates. This is probably due partly to the fact that estate lands have not been so easily extended as have peasant lands and also to the fact that estate labour costs have increased as greater peasant opportunities have emerged.

The amount of substitution of one crop for another which can take place following relative price changes is somewhat limited by physical conditions in some places, and also to some extent by organisational factors. If, for instance, no mill exists nearby to accept deliveries, sugar will not be grown; or one might cite the case of specialisation in arrowroot in St. Vincent and nutmeg in Grenada which has been partly due to the existence of marketing organisations. Some substitution has undoubtedly taken place in response to relative price changes, but we believe that this has been marginal in the case of export crops and has probably seriously affected the production of roots and vegetables only. Root crops may actually have declined in acreage or remained static. The output of vegetables and other domestic foods has not increased in line with population increases.

We consider therefore that price-supply responses have been positive for most of the main export products, although not necessarily positive for domestic food crops. The relationship is not measurable in quantitative terms, partly because the price levels, which have tended to stimulate supplies, have been price levels of an undefinable period. In tree crops, for instance, we consider that until recent years, memories of pre-war prices, and fears of a return to such levels of prices may have inhibited some expansion, while for most of the shorter term crops, last season's prices will probably have had a greater influence in the amount supplied.

Returns to growers

Table 4.5.vi shows recent estimated gross returns per acre per annum for various crops.

Although production costs have been estimated for various crops these have been generally for one or two farms only. Only for rice have properly sampled studies been made (Ref. S.b.2. and S.b.3.) 2/. One of the problems however is that straight comparisons between estate and peasants are meaningless since the peasant and his family undertake most of the work on a peasant farm.

Considering peasant production alone, however, some calculations made at various times for national income estimates indicate very roughly the receipt per acre for labour and profit after all outgoings have been met. These figures indicate that where banana can be grown it is the most profitable crop for peasants in terms of returns per acre. In territories where banana is not grown, sugar is generally more profitable than ground provisions, vegetables or coconuts, on a per acre basis.

2/ A cost survey for cocoa has been undertaken in Grenada.

Table 4.5.vi

Gross returns per acre per annum to growers for selected products, by territories

Territory	Sugar cane	Cotton	Copra	Banana	Ground provisions 1/
			BWI dollars		
Jamaica	278.9	-	90.8	228.2	110.0
Trinidad and Tobago	346.3	-	95.0	411.4	N.A.
Barbados	478.8	-	-	-	N.A.
St. Vincent	275.0	192.0	134.0	320.6	150.0
St. Lucia	N.A.	-	110.0	N.A.	N.A.
Grenada	N.A.	-	N.A.	N.A.	N.A.
Dominica	-	-	140.2	443.2	N.A.
St. Kitts	404.6	N.A.	-	N.A.	N.A.
Antigua	188.1	200.2	-	N.A.	N.A.
British Guiana	362.1	-	89.0	-	N.A.

1/ Roots crops.

Source: Data and material developed during the study and other available data.

In certain conditions rice yields more revenue than sugar for a small farmer in British Guiana, and in Trinidad and Tobago and Grenada cocoa may yield more revenue than banana. Conditions of production naturally influence these comparisons a great deal.

As regards estates, where sugar is grown on a significant scale it is considered the most profitable crop; there are only minor cases of sugar acreages being given over to other crops on estates and these are not representative. On the contrary, where substitution has taken place, it has probably been in favour of sugar.

In the absence of more exact cost data, we can only give general conclusions. Fairly definite trends are, however, in evidence.

The traditional sugar economy has not suffered from competition from the newer cash crops such as banana and cocoa. Sugar still remains one of the most profitable cash crops. Banana and cocoa expansion may have resulted in a decline in the acreage of less profitable domestic crops, particularly roots, but has probably been achieved mainly by more intensive intercropping and by the cultivation of new areas. Supply has been positively elastic to price increase for most products, and substitution effects due to relative price changes have been negligible. It is not so certain whether we can predict a continuation of this characteristic of positive elasticity, since available new areas are now limited. (See part four, chapter 1.) Perhaps the most important factor is a negatively elastic labour supply curve which is becoming apparent in some areas. This is discussed in the section on labour and manpower problems in this chapter. Already there are indications that supply-price functions have not been positively elastic to the same extent in the period 1957-62 as they were earlier, and we feel labour factors may be the main cause of this change.

External trade agreements

The prices which are paid to growers for export crops are of course a reflection of the world market price. The subject of the future of world market prices is outside the scope of this study, and in particular we would not be in a position to make an assessment of the effect that Britain's possible entry into the Common Market would have on the return for the various commodities. We feel it is relevant, however, that we refer to the price arrangements which apply to sugar, copra and rice, and to some of the buying arrangements for other products.

Although as far back as 1929 a commission suggested to the United Kingdom Government that colonial sugar should be purchased at a fixed price, no measures were taken until 1932 when the United Kingdom introduced Colonial Sugar preference certificates by which all sugar exported to the United Kingdom received an extra £1 per ton over the world price. This price was not sufficient to alleviate a condition of bankruptcy and severe unemployment which existed in West Indian Colonies. During the war a guaranteed market was offered but shortages of equipment made it difficult for producers to improve their productive capacity or increase their efficiency. Between 1946 and 1949 the United Kingdom Government guaranteed a market for West Indies sugar and these guaranteed marketing arrangements were extended to 1952. World prices were considerably higher on the average, however, when the British Commonwealth Sugar Agreement came into being. The agreement was initially extended to 1959, and has now been extended to 1968.

Under this agreement all Commonwealth countries agreed to an export quota, the overall agreement quota. Of this total, two-thirds was to be purchased by the United Kingdom at a price which would be negotiated annually and which would be based on costs of production rather than on world prices. The West Indies share of the overall quota is 900,000 tons; only 640,000 tons was, however, the negotiated price quota (revised to 672,000 tons in 1960). The difference between the overall agreement quota and the negotiated price quota is sold at the world price plus the advantage of preferential tariffs applicable to all Commonwealth countries. Any exports over and above the 900,000 tons can be sold in world markets at the world price. In addition, however, the Commonwealth producers have a quota of production under the International Sugar Agreement.

Since 1954 total production has exceeded the overall agreement quota for the West Indies, and the quantity of sugar sold in unguaranteed markets increased by 1960 to 157,148 tons. The West Indies has from time to time obtained the benefit of short-falls by other Commonwealth producers. Also, since the United States embargo on Cuban sugar, part of the West Indies surplus has been disposed of to the United States at premium prices. The quota premiums will be reduced by 1964, but it is expected that a more certain U.S. market will exist so long as the present political situation between Cuba and the United States persists.

Thus, in spite of the growth of non quota production in the area, prices, when averaged over the whole of the exports, have only been influenced marginally.

Although we have predicted a fairly substantial increase in production up to 1968, we do not consider for the reason given above that the average price will be seriously affected although a decline of up to 10% might be expected. The events after 1968 are uncertain,

but we have preferred to assume that some arrangements will be made for Commonwealth sugar after that period which will not make the situation significantly less advantageous than that now ruling. In any case we have considered that physical limitations are likely to slow the rate of expansion after 1965, so that if marketing difficulties do arise they are unlikely to be aggravated by the rates of growth of output that have been experienced over the past twenty years.

Of the other commodities with which we are concerned, rice and coconut products have been subject to agreements covering quantities and prices, but these agreements have been of an intra-regional nature.

The West Indies Rice Agreement dates from 1946 when the then Marketing Board of British Guiana entered into an agreement with the individual governments of the Leeward and Windward Islands, Barbados, and Trinidad and Tobago. The agreement required the delivery of a given grade of bulk rice at a fixed price according to the need of the island. The first agreement lasted until 1954. British Guiana could not deliver the full quota during the first few years; but in the meantime output was being increased. The agreement was then extended to 1956, and a separate agreement was made with Jamaica. The agreements affected bulk rice only; packaged rice could be sold privately.

In 1956 a new agreement was drawn up between British Guiana on the one hand and the government of the West Indies Federation on the other hand. It was decided to review the price annually at an annual rice conference.

These agreements controlled by far the major part of rice trading in the British Caribbean and they still continue in being although the position has reverted to one in which agreements are being made between British Guiana and individual governments. Although cost studies have been made and have been extensively quoted at rice conferences, the price has on the whole been settled purely by higgling and bargaining, and although some increases have been given, on the whole the price of rice has been held by the threat of buying countries to abandon the agreement and buy from cheaper world markets.

It is doubtful whether the buying territories could have purchased better overseas, and certainly when one takes into consideration delivery and supply problems they have benefitted immeasurably from the agreement. More recently British Guiana's bargaining position has been improved by the fact that she has found other markets in the region. The agreement with the other British Commonwealth Territories, however, gives her a more assured market position than any of the other arrangements she has made.

The West Indies Oils and Fats Agreement dates from the second world war when it was seen as a means of protecting supplies. In 1947 it became a permanent peace-time institution with the object of protecting and encouraging the local production of coconut products. All the islands of the West Indies and British Guiana are signatories to the agreement. The purpose of the main clauses in the agreement, which has been periodically renewed since 1947, has been to prevent growers of coconuts from disposing of coconuts and copra outside the region, and to prevent processors from importing from outside the region.

The result of the agreement has been that imports of vegetable oils to the area or exports from the area have been insignificant over the past fifteen years, so that it has

appeared that a very fine balance has existed between total supplies of copra and demand by processors, although it might well be considered that the limitation on supplies has inhibited growth of processing.

Processing firms exist in all territories except Montserrat and St. Kitts, but in the smaller islands they make a limited range of products. Larger plants for making edible oil, fats and soaps exist in Barbados, Trinidad and Tobago, Jamaica and British Guiana. The main coconut growing territories are Jamaica, Trinidad and Tobago, British Guiana and the Windward Islands; the latter export copra to Barbados for processing. Jamaica has been to some extent a separate limb of the agreement in that she has been self supporting and has not, owing mainly to distance and transport problems, imported raw material from the Eastern Caribbean. Of recent years Jamaica has had an export surplus, and has found a market for raw coconuts in the United States.

There is little doubt that the agreement has done much to build up the coconut industry in the West Indies, to encourage better methods, and to create a strong consumer demand for cooking oils, locally produced edible fats, and soaps. Toilet soap is made in Jamaica and Trinidad and Tobago.

Other institutional arrangements

Some organisations exist for the protection of the interests of farmers as such; for example, the Cane Farmers Associations in various islands, the Banana Producers Associations, and the Rice Producers Association in British Guiana and various other associations. In addition, various organisations, such as the Sugar Producers Associations, the West Indies Sea Island Cotton Association, the coconut industries, Cocoa Boards and Banana Boards, and the Rice Marketing Board in British Guiana may be concerned to a large extent with marketing problems. Some of these, particularly in Jamaica, are public boards. Others, such as the Sugar Producers Associations, are associations of the firms or individuals concerned in production.

It would not be relevant here for us to discuss these various organisations and their functions in detail, but it should be noted that such organisations have had a very important influence on improving agricultural methods, and certain of them take an active part in research and in distributing fertilizers, running machinery pools, and distributing seed material.

Those industries which are organised partly or wholly on an estate basis are also served by strong trade unions. Although strikes have at times dislocated production, the worst ones have frequently been unofficial. On the whole it must be agreed that the unions have contributed much not only to improving wages and conditions, but indirectly to bringing about more efficient and labour saving methods. It is largely due to their activities that "sweated labour" forms of agricultural work are declining in the area and although this leads to some adjustment problems it should also assist a trend towards high income forms of agricultural activity.

Labour and manpower problems

As has been explained, small farms exist side by side with large estates in the West Indies and in most places the worker who earns wages on the large estates may also have a plot of land to cultivate.

The casual nature of employment in the West Indies makes it very difficult to measure unemployment and underemployment. Most agricultural workers can find work for part of the year, but rarely can they find sufficient work to constitute full time regular employment.

The sugar industry is habitually one which has depended on a large labour force ready and available for seasonal work, so that in the main sugar growing areas there are two distinct periods: "in-crop" when there is work for all and "out-of-crop" when only a minority of regular workers are employed. This pattern still exists in spite of partly successful efforts by many estates to spread work throughout the year.

It was estimated by the British West Indies Sugar Association in 1958 that of a total of 3 million people in the region, 184,000 were directly employed in estates and factories; with their families this would mean about three-quarters of a million people were directly dependent on the industry. This did not include thousands of small farmers who sold cane to the factories but were not directly employed by them.

The labour force employed in sugar has not increased at the same rate as production over the past decade. In some areas workers have been made idle by mechanisation, particularly of the loading and transporting operations. Follow-up studies in Jamaica indicate that most of these workers have either migrated or have been absorbed in the general expansion of this and other industries.

In crops such as cocoa, banana and citrus we find a pattern of numerous small peasants and a few estates. Considering the frequency pattern there is still a tendency for numbers of growers to inflate the lower end of the distribution, and for acreage and production to inflate the upper end. However, in banana, medium-sized farms contribute substantially to the total product. Where land is available for peasants to grow bananas it is not so easy for estates to find wage labour for this industry. In coconut, estates predominate and difficulties of finding labour have been experienced in this industry where banana production has increased. The coconut industry is, however, saved by the fact that demands in labour need not be specifically timed and coconuts can generally wait until labour is free from more exacting crops.

Rice production in British Guiana has traditionally been carried out by small producers who also work seasonally on sugar estates; but with the development of new rice areas some distance from the main sugar areas, this pattern is becoming less pronounced. Nevertheless rice growing is still a predominantly part-time peasant crop. It has been estimated that about 25% of all labour is paid labour. Nevertheless much of this is supplied by the farmers themselves, who work in turn on each others' farms.

The expansion of the livestock industry has been inhibited to some extent more by shortage of managerial categories of labour than by shortage of unskilled types. This is particularly evident in the Jamaica dairy industry where there is a large unfulfilled demand

from the condensery and from households, and where it is felt that the development of larger dairies has failed largely because of lack of skilled management.

Details are not yet available from the 1960 census, but estimates of the labour force made by governments indicate that in Jamaica in 1957, 49% of the labour force was engaged in agriculture; in Trinidad, in 1956, 25%; and in British Guiana in the same year 39%. We should expect to find the proportions slightly lower at a more recent date as the effect of migration and urbanisation has definitely been at the expense of the agricultural labour force rather than that of other sectors.

This urbanisation is illustrated in Jamaica by reference to figures comparing the population of Kingston and St. Andrew (the most important urban area in Jamaica) in 1943 and 1960. In 1943, the population of Kingston and St. Andrew was 238,229 or 19.25% of the total population of Jamaica, and in 1960 it was 421,718 or 26.14% of the total population.

Detailed, reliable figures on net migration are not available for all territories. It was estimated as 6,800 in Jamaica in 1958, and 16,300 in 1959. The period 1959-62 has been the heaviest migration period, and it is believed that the Leeward Islands and Windward Islands have lost more, proportionate to their total population, than have the larger islands. Indeed, in Montserrat with a population of 12,000 at the 1960 census it is believed that between 20% and 25% of the population has been lost by migration in the last four years.

Migration has undoubtedly affected the rural areas more than urban areas, and has led to seasonal labour shortages in many territories. These seasonal shortages have been met by temporary movements of workers from one island to another in the Leeward Islands, Windward Islands and Barbados, and to a lesser extent from one area to another in Jamaica.

Migration is associated, by some observers, with the attitude of mind which appears to exist among many West Indians, that agricultural labour, and particularly that associated with the sugar industry, is to some extent degrading and associated with slavery. How far this attitude exists is difficult to say, but it is felt that a better approach and wider acceptance of agriculture as a way of life would follow a change from low-skilled, cheap labour type of production to more specialised forms bringing higher income. But of course such an agricultural revolution presupposes that educational standards will be raised and the necessary skills will be forthcoming.

Investment in agriculture

Unfortunately, estimates of gross domestic fixed capital formation do not give very exact breakdowns of capital formation by industry, but broad figures indicate the amount of capital invested in agriculture in the four territories for the period 1956-60 (Table 4.5.vii).

From import returns we find that in 1959 Jamaica imported BWI$4,379,894 worth of farm implements, machinery and tractors, Trinidad BWI$1,944,000, the Leeward Islands, Windward Islands and Barbados approximately BWI$452,000 worth, and British Guiana BWI$3,598,895. (A small part of the tractor imports may have been for non-agricultural purposes.)

Table 4. 5. vii

Gross domestic fixed capital formation in agriculture, by territories, 1956 through 1960

Territory	1956		1957		1958		1959		1960	
	Agriculture	Total	Agriculture	Total	Agriculture	Total	Agriculture	Total	Agriculture	Total
	Million BWI$									
Jamaica	16.8	186.2	23.5	250.1	20.2	227.5	22.1	221.3	24.5	248.2
Trinidad and Tobago	8.0	120.8	7.4	147.5	9.0		10.8		14.2	
Leeward Islands, Windward Islands and Barbados	6.7	39.0	7.8	45.0	6.9	44.0	44.0	49.0	11.6	52.0
British Guiana	4.3	48.0	N.A.	61.5	N.A.	60.9	12.7	59.1	N.A.	77.9

Source: Data and material developed during the study, and other available data.

Capital output rates have been computed for the economies of Jamaica and Trinidad and Tobago, but, for the economies as a whole, these rates have been rendered rather meaningless because of big fluctuations in mining investment. In Jamaica, increments to product in agriculture are not very high. Taking the total of gross domestic fixed product in constant prices at 1959 and comparing it with 1956 we find an increment of BWI$ 17.6 million only; but the gross investment in agriculture totalled BWI$ 65.8 million for 1957, 1958 and 1959 (at current prices). Although quantitative data are not available, there is evidence that returns in capital are greater in agriculture in the smaller territories, particularly where there has been an expansion in banana.

One of the problems of measurement arises from the fact that it is well nigh impossible to evaluate capital formation brought about by the non-cash activities of peasant farmers who may clear land, drain it and carry out other improvements with no cash transaction having been registered. The costs of establishing banana must of course vary from site to site, but some estimates have been given which indicate costs of approximately BWI $400 per acre in Jamaica, BWI$ 570 in Dominica, and BWI$ 810 in St. Lucia. Net returns on banana are likely to be sufficient to recover this cost within two to three years.

Credit has been available to farmers under various government schemes and fairly considerable funds have been loaned under peasant development schemes of Development and Welfare projects. Credit has also been available through sugar companies (usually just on an annual basis) and other marketing organisations. To generalise, one might say that credit has probably been more readily available than has the extension work necessary to ensure proper returns on the investment. Where credit is given on crop liens, of course repayment is generally ensured, but there is evidence that many small farmers are carrying a heavy burden of indebtedness. This is probably most serious in British Guiana where

rice growers often owe considerable sums to machinery suppliers, landlords and millers. In a rice survey done in British Guiana in 1957 (see Ref.S.b.3, Appendix II) there was much evidence of under-utilisation of machinery on larger and medium farms, much of which was being purchased with credit. This led to higher costs of production actually being found on some mechanised farms than were found on non-mechanised farms.

Investment in the sugar industry has been greatly assisted by a system of compulsory saving which takes the form of three tax funds into which it is compulsory for manufacturers to pay a certain amount, which in most territories is J£2.15s. per ton of sugar. Of this amount, 10 shillings (J£1 in St. Kitts) must go to the Sugar Labour Welfare fund and the remainder to the Price Stabilisation fund and the Sugar Rehabilitation fund.

Although only the latter fund was intended for capital investment in the industry, the Price Stabilisation fund has, by agreement, been extensively raided for capital improvements. Each year, something like J£1,500,000 accrues to these last two funds in all territories and has constituted a useful source of investment capital to supplement private resources of sugar companies. No figures are available, however, to show the total of investment in sugar.

The size of farms

The West Indies is an area which includes both large estates and small farms. The larger estates, however, which are mainly concerned with the growing of coconuts and sugar, do not encompass acreages of the extent which might be found in continental areas, or in territories where the surface of the land is less broken by rugged mountain ranges. As would be expected, some of the larger areas are those of sugar estates and cattle ranches in British Guiana; but the vast majority of farms in numerical terms are those which are occupied by small-scale producers, and are worked by the operator and his family.

Although a number of factors have been causing changes in the size distribution of farms it is not easy to identify these or to show the true pattern of change. In Table 4.5.viii we show the size distribution of farms by acreages in the Windward Islands, Jamaica, and Trinidad and Tobago for two periods, and for the Leeward Islands and Barbados for one period only.

In the territories for which comparable data are available, it must be noted that the exact definition of small plots and farms below five acres may be different as between the two periods. It is considered however, that the information relating to large holdings has a higher degree of accuracy.

The figures indicate that there has been a reduction in the area of farms of 100 acres and over in all territories listed except St. Lucia, and in Trinidad and Tobago, where the increase is negligible. In Jamaica the reduction is greatest and although this may be partly due to some statistical discrepancies it also follows from the fact that a few estates have been broken down into small holdings, and from the growth of the banana industry, which is mainly a small farmer's crop. In the intermediate size groups we find again some decline in acreages. It appears that all acreages lost to larger and medium sized holdings have supplemented acreages of farms below ten acres and small plots. The growth of the acreage under small plots has been quite significant. However, we feel that differences

Table 4.5.viii

Total acreage in farms, by size of farm, by territories, for selected periods

Territory and year	Size of farms					Total land in farms 1 acre and over	Estimated acres in small plots up to 1 acre
	1 to 4.9 acres	5.0-9.9 acres	10.0-49.9 acres	50.0-99.9 acres	100 acres and over		
	Acres	Acres	Acres	Acres	Acres	Acres	Acres
Windward Islands:							
Dominica:							
1946	7,320	6,346	17,509	5,753	42,363	79,291	1,024
1958	8,027	7,047	9,769	6,274	40,072	71,189	2,631
Grenada							
1946	10,919	5,751	8,662	4,017	40,067	69,416	1,700
1956-57	14,021	7,066	9,496	4,030	32,715	67,328	3,122
St. Lucia:							
1946	2,404	5,800	22,066	4,112	31,745	66,127	462
1958	10,492	9,300	17,136	3,706	38,212	78,846	3,214
St. Vincent:							
1946	6,924	5,255	6,611	2,148	28,434	49,372	1,270
1957-58	8,986	5,316	6,182	1,305	22,584	44,373	1,602
Jamaica:							
1958	1/114,363	2/ 424,585			1,198,206	1,737,154	N.A.
	3/248,700	4/ 723,200			828,800	1,800,700	22,300
Trinidad and Tobago:							
1946	38,109	39,898	95,089	25,277	216,564	380,647	18,990
1958	40,000	50,200	110,900	27,800	222,813	451,713	18,934
Leeward Islands:							
Antigua, 1946 5/	6,225	1,425	1,616	1,476	37,265	48,007	780
St. Kitts-Nevis-Anguilla, 1946	4,874	1,362	2,318	780	40,478	49,812	N.A.
Montserrat, 1946	2,605	526	1,108	111	12,825	17,175	665
Barbados, 1946	7,401	1,744	2,949	1,677	74,809	88,580	8,805

1/ 1-5.9 acres
2/ 6-99.9 acres
3/ 1-4.9 acres
4/ 5-99.9 acres
5/ Includes Barbuda.

Source: Data and material developed during the study and other available data.

in definition made it impossible to say how much of the increase is actually in small plots and how much in farms of less than five acres. In particular, the Trinidad and Tobago figures for small plots in 1956 is probably inflated by omissions from other size groups.

If comparable figures for the Leeward Islands were available we should expect to find an increase in small farms at the expense of estates, because estates have been broken up in Nevis and Montserrat to make land available to small farmers. In Antigua, a similar government scheme has resulted in allocation of estate land to peasants, but the big movement took place in Antigua in the 1930's when considerable estate acreages were allocated to peasants. In British Guiana, we should expect to find in recent years an increase in the relative importance of small farms. This is not because of the breakup of estates so much as because of new acreages reclaimed by drainage schemes being generally made available to peasant farmers.

Provisional figures for the 1961 census give some indications that migration from the country into the town, in Jamaica, and migration outside the territories themselves may have reduced the number of farms, particularly those of less than 10 acres. Until figures of acreages are available, however, it is difficult to say whether this trend has reduced acreages in each size group. It may mean that some operators are farming slightly larger areas, which may affect the total acreage within size groups only marginally. There is, however, some evidence that emigration has reduced the cultivation of roots and certain vegetables. Available information shows this as the only sector for which we can identify a decline in production totals.

Although figures of sizes of farms growing certain main crops were estimated in various censuses these are not felt to be reliable enough to permit comparisons between dates. For certain crops, figures of deliveries from large and small farmers are available, and we have been able to assess the changing position from these.

Sugar is grown by peasants and estates in Jamaica, Barbados, Antigua and Trinidad and Tobago, but in St. Kitts and British Guiana, peasant cultivation is negligible and the peasants' share in the total has not shown any change in the past two decades.

In Jamaica, the peasants' share of total cane supplied to mills increased from 25.5% of the total in 1940 to 38.8% in 1955, and to 44.2% in 1959. We believe that this increase in the peasants' share has been one of the main factors, if not the main factor, in depressing yields in Jamaica when they have been rising in most other territories. We do not however envisage a continuation of this trend towards greater peasant participation in cane production.

In Barbados it is estimated that peasants' acreage reaped increased from about 7,000 or 18% of the total in 1940-46 to 10,000 or about 22% of the acreage in 1955-60. In Antigua, peasant acreages are estimated at about 40% of total acreage, and there has been little change since 1950. In all cases, peasant yields are slightly lower than those of estates, so that a 40% share of the acreage would indicate less than a 40% share in actual cane deliveries.

Table 13b shows the size distribution of banana growers in certain territories. No figures are available that would show if the size pattern of banana farms has changed. We

believe that the growth of the banana industry since 1920 has resulted in an increase in the number of farms of five acres and less, particularly in the Windward Islands.

Rice is grown mainly by small farmers, and the policy of bringing new lands into cultivation will have increased the number of farms below twenty acres in British Guiana in spite of the fact that two centrally operated holdings of estate dimensions have been included in the scheme. Available figures indicate that yields per acre are higher on small farms than on larger farms. This is because some peasants cultivate more intensively than estates. As with rice, we should find livestock production in British Guiana more intensive with small producers than with ranchers. Thus an increase in the number of small farms may not mean lower yields. This characteristic, however, is likely to apply only to territories in which extensive cultivation is possible, and in which profit-to-capital ratios are more or less independent of yield-per-acre ratios.

For tree crops such as cocoa, coffee, citrus and coconut, we should expect estate cultivation to be more efficient than peasant cultivation. Pure stand cultivation is more general on estates than on small farms and is likely to increase the yield of any given product per acre (although not necessarily to increase the cash return per acre). An exception to this may be when a land-extensive crop, such as coconut, is intercropped with a more land-intensive crop, such as banana, when the yield of the former may benefit from better cultivation and fertilising practices intended mainly for the latter.

As regards other crops — tobacco, roots, vegetables, corn and pulses — available information does not indicate the effect of farm size on yield. Sea island cotton shows a definite relationship between estate cultivation and higher yields. Since we have predicted that estates are likely to discontinue this crop, we can expect a depressing effect in yields which might, however, be countered by better seeds and better practices.

The yield and quality of beef has been upgraded in Jamaica by the introduction of ranching methods. This, however, has probably upgraded the weight per head rather more than the weight per acre, as the method is essentially one of extensive cultivation. We have taken into account that ranching areas may be increased relative to small cattle holdings when considering our projections.

All in all, we can conclude that the breaking up of estates in some areas has tended to have a depressing effect on yields. We believe that migration and urbanisation are counteracting this to some extent since they are leading to a consolidation of some smaller holdings, and also possibly to abandonment of some marginal land. If efficiency of production is to be maintained in the future, it seems unlikely that it will come about by political pressures to break up estates and make the land available to small farmers. However, if land-hunger were to become an urgent problem (supposing, for instance, migration were completely curtailed and industrialisation received any kind of set-back), then political considerations in favour of land-reform might off-set those in favour of increasing efficiency.

Chapter 6

FACTORS INFLUENCING YIELDS AND PRODUCTION: PHYSICAL AND TECHNICAL

Breeding, disease and climatic factors

Research into the most suitable types of plants for West Indian conditions has been undertaken by governments, by such organisations as the Citrus, Coconut and Banana Boards, and by private businesses or their agents, such as the Sugar Manufacturers Association.

Considerable advances in improving sugar cane types have been made by the Central Cane Breeding Station, run by the West Indies Sugar Producers Association (BWISA), where attention has been given both to disease resistance and to increasing yields in the various climates and soils of the different islands. These variations in soil and climate have demanded specialised attention to each territory. In British Guiana, for instance, there are alternating wet and dry seasons, and this makes two crops of quick ripening varieties possible whereas other territories favour growth of canes taking longer to mature.

The recommendations of the Cane Breeding Stations are usually fairly promptly adopted. In Barbados for instance the B 37161 variety is being replaced by newer varieties such as B 45154, B 4744 and B 47419. There have been rapid changes to more resistant varieties when diseases have broken out in various islands.

The BWISA has a dynamic approach to cane breeding and holds that an ideal variety can only be vaguely formulated since cultivation conditions and disease conditions are changing most of the time. They consider that efficiency is likely to be improved in the future mainly by varieties with increased sugar content in the present range rather than by higher yields in the fields.

Thanks to the work of such organisations as the Central Cane Breeding Station, diseases are not nearly such a limiting factor in sugar cane cultivation as in the cultivation of most other commercial crops, but there have been some outbreaks of "leaf scald". The loss from diseases has not been computed, but has probably only been marginal, taking the area as a whole.

Rainfall has a very important influence on the growth of sugar cane. The main sugar cane areas of the West Indies range from Antigua with an average annual rainfall of 41.52 inches per year to British Guiana with an average annual rainfall in the principal

sugar cane areas of just under 100 inches. Naturally rainfall is a most important determinant of yields in those areas in which rainfall is on the average low. Rainfall is of particular importance in Antigua, St. Kitts and Barbados. These facts are illustrated in Table 4.6.i, which also indicates that inadequate rainfall may have been of importance in depressing yields in Jamaica.

Table 4.6.i

Average yields of sugar cane and average rainfall, by territories, 1940-49 and 1950-59

Territory	Average rainfall (inches per year)		Average yield (tons of sugar cane per acre)	
	1940-1949	1950-1959	1940-1949	1950-1959
Antigua	41.52	43.83	15.65	19.59
Barbados	48.76	65.52	24.82	33.37
British Guiana	94.31	95.46	1/ 27.49	36.23
Jamaica	74.23	54.46	27.83	22.48
St. Kitts	55.37	55.82	26.92	30.55
Trinidad and Tobago	63.19	66.30	22.42	28.84

1/ Estimated.

Source: Data and material developed during the study and other available data.

Historically the most important banana in the West Indies has been the gros michel. But this banana is susceptible to Panama disease, which was identified in Jamaica in 1911, and has almost entirely disappeared as an export type. The lacatan is now the main variety, and now represents 95.3 % of total exports from Jamaica.

Other diseases which affect banana production are leaf spot and burrowing soil nematode. These diseases are much more prevalent in Jamaica than in the Windward Islands, due mainly to the run down nature of much of Jamaica's soils. Most of these diseases are more easily controlled by spraying than is Panama disease. Leaf spot seriously reduces the effective leaf surface of the affected plant, and if allowed to go unchecked will stunt the plant and result in lower grading or total rejection. Intensive spraying is necessary, and in some flat areas orchard oil has been sprayed from light planes. This, however, is impossible in most areas, and spraying must continue to be an important cost of production in banana cultivation.

In breeding of banana plants, a great deal of emphasis has been given to disease control, but up to recent years the effect on weights and yields was marginal. Banana types take many years to breed, but several new varieties are now under trial and it is hoped that they will be more efficient in weights and more disease resistant.

Climatic factors are very important in banana cultivation. Heavy windstorms, not necessarily of hurricane force, can cause up to 100 % mortality as in parts of St. Lucia when hurricane Abbey struck in 1960 and as happens in some parts of Jamaica almost annually. In spite of the large loss from this factor little attention appears to have been given in the breeding programmes to a more wind resistant variety.

The British Guiana Rice Marketing Board has been the most important medium of research into the breeding of rice and control of disease. Improved breeds have been introduced, which have probably tended to be more disease resistant, but have not expanded yields over a large area.

Climate factors are the most important determinant of seasonal fluctuations in yields, and flood and drought are often the most important causes of diseases. In British Guiana weather conditions are extremely uncertain. In 1955, severe flooding destroyed approximately 30 % of the total autumn crop, and in 1957 a prolonged drought practically eliminated the spring crop and reduced the autumn crop. In rice production, water control is likely to have a greater importance in the future than are improvements in breeds, which are already well advanced.

The extent to which different citrus varieties have been grown has depended very much on the type of market concerned. For instance, as larger proportions of total Jamaican output have been processed rather than sold, types which are good for processing rather than for fresh fruit markets have been developed. Research and the distribution of insecticides and fertilizers are carried out through local processing associations.

Perhaps the most important development in breeding has been the appearance of a new fruit in Jamaica, a hybrid of the orange and tangerine, the ortanique. It has very superior qualities for travelling and for table use. Its appearance is likely to affect materially the future supplies of the industry, and to give Jamaica an advantage over other citrus producers.

Diseases such as citrus canker and pests such as fiddler beetle are widespread in the area and in Dominica. The once flourishing citrus industry suffered a substantial reduction in production and export between 1956 and 1959. The mortality among young plants has been very high due partly to inadequate care and spraying. In Jamaica, it has been estimated that between 1947 and 1954, 14,000 acres of citrus, mainly oranges, were established, and that by the end of 1960 only 7,500 acres survived or were in a condition to merit fostering.

We can thus conclude, regarding citrus, that both the breeding of new types and overcoming of some disease problems are likely to influence yields and supplies.

Regarding vegetable and root production, there is little attempt at present to improve varieties or control diseases, although spraying against common garden pests is probably becoming more widespread. Experiments in other tropical countries indicate that attention to suitable varieties is the main key to efficient vegetable production. We can expect some advances in this field, associated with more scientific production methods, but the results cannot be guaranteed.

Sea island cotton, although a minor crop in the West Indies, could no doubt have been of much greater importance had it not been for the pink boll weevil. In some years considerable proportions of the crop have been destroyed by this pest. Governments have endeavoured to control this pest by ordering a "closed season" for cotton growing during which all plants must be uprooted and burned. Nevertheless with increasing peasant farmers, as against estate producers, production and practices of share croppers and migratory cultivators, who are common in cotton growing regions make control difficult.

The common cotton grown in the West Indies is Montserrat Sea Island. In 1954-55, Antigua planted 733 acres of VH8, an intermediate variety evolved to suit Antigua conditions. While it is evident that this latter is a better quality cotton and slightly more disease resistant, it is difficult to estimate the difference in yields due to plant types, since the VH8 is grown mainly by estates, and the MSI by peasants. The average yield of VH8 between 1955 and 1960, was about 35 % higher than MSI.

If the sea island cotton industry survives, we may expect to find some progress in the control of disease and plant types. But improvements in the last few years seem to have been counteracted by deterioration in many of the soils on which cotton is grown.

Perhaps there is no other product that has been so influenced by genetic factors as has cocoa. In the major cocoa producing territories of Grenada, Jamaica, and Trinidad and Tobago, a complete replacement of all old stock by a new government produced clonal material is planned. The result of those projects is likely to increase yields from the low average of about 170 pounds per acre to something between 500 and 600 pounds per acre when the plants are mature. Thus genetic factors must be seen as the main cause of the rather significant expansions which we have projected.

In the coconut industry, disease and climatic factors have been of overwhelming importance. The two big killers are lethal yellowing, which has caused one hundred percent mortality of the larger palms in some areas of Jamaica, and red ring, which can also cause one hundred percent mortality. Red ring is endemic in Trinidad and Tobago and British Guiana, and is perhaps worse than the lethal yellowing in that it favours young trees rather than older ones, and may devastate a complete new plantation just at the pre-bearing stage. The loss of palms from these diseases throughout the area has probably approached fifty percent of the palm population. In some areas, the existence of the diseases has very definitely deterred operators from taking up this crop.

Climatic factors have been of little less importance in Jamaica. The hurricane of 1944 destroyed approximately 40 % of the bearing coconuts, and that of 1951 about 25 %.

Thus the breeding of disease resistant and, if possible, wind resistant varieties has been given precedence in research over factors affecting production ability. The red-ring nematode in Trinidad and Tobago has recently been identified, however, and in Jamaica, the widespread introduction of Malay dwarfs, which are resistant to lethal yellowing, has met this problem.

While no one can predict the course of new or old plant diseases, we feel that diseases and hurricanes are less likely to have a destructive influence in the future than they have had in the past.

Livestock improvement in the West Indies has mainly taken the form of upgrading of crossbred native livestock with imported stock, and efforts made by the various governments have met with some success. In Jamaica, however, the development of a local type of dual purpose cattle has gone rather further, and the Jamaica Hope is considered a breed in its own right. Recently much controversy has taken place as to whether this breed can become the basis for an expanding dairy industry. Many authorities favour the Holstein. Since this argument has not yet been resolved by the specialists it is difficult for us to quantify the likely effects of genetic improvement on output. In any case, the effects of improvement on the higher quality stock are likely to be marginal. Of far greater importance are the large numbers of low quality and scrub livestock which tend to downgrade the herd in all territories. This problem is likely to be a long term problem, but we except some improvement within the period with which we are concerned. Nevertheless we are rather doubtful whether genetic improvements will be as important as improvements in herd and pasture management in the hoped for increase in yields.

Nutritional deficiencies have been one cause of disease in livestock, but have only been a major problem in areas where there has been over-stocking, particularly when associated with long droughts. Only in British Guiana is foot and mouth disease endemic; there it led to serious mortality in 1955 and again in 1960. The control of this disease is extremely difficult in a territory which has vast frontiers in common with other underdeveloped and underpopulated countries, and we have felt it necessary to allow for the possible effects of this disease when projecting production of beef for British Guiana.

Perhaps the second most serious livestock disease is the Newcastle disease of poultry. This has reduced the poultry flock in Trinidad and Tobago to rather less than half the number that had been planned. Here again we find difficulty in assuming that this disease can be completely controlled in the near future, although some improvements in control are already evident.

Fertilizers

The sugar industry in the West Indies switched from using mainly pen manure to the larger scale utilisation of chemical fertilizers in the 1940's, and there is little doubt that the increases in yields experienced in most territories in the past decade are largely the result of better fertilizing practices.

The following figures indicate the extent to which the use of fertilizers has increased within recent years:

Imports of fertilizers by territories, 1950, 1955, 1958, 1959

Territory	1950	1955	1958	1959
	1,000 tons			
Jamaica	13.2	22.8	37.8	41.4
Trinidad and Tobago	6.0	18.6	20.3	20.2
Barbados	12.6	14.5	15.6	15.6
British Guiana	N. A.	17.2	26.9	1/ 24.0

1/ 1960.

Source: Data and material developed during the study and other available data.

The other main sugar cane producing island, St. Kitts, imported annually 3,500 tons of fertilizer in 1958-60. The application of St. Kitts, although high by the standards of other small islands, has not showed as marked an increase over the period 1950-59 as in the larger territories. This is thought to be due to the fact that natural soil fertility there is high, and the optimum amount of fertilizer has probably been in use for some time.

Crops which are mainly produced by peasants frequently suffer from lack of fertilizers, and this is one of the main reasons why, in the West Indies, peasant production has lower yields than estate production. Nevertheless there has been a surprising increase in the use of chemical fertilizers by peasants, particularly those growing bananas. Banana fertilizers are distributed by the local banana growers association, and in some territories a subsidy is paid. In coffee production a compound of ammonia, superphosphate and muriate is recommended, and various compounds of nitrogenous, phosphorous and other chemical fertilizers are recommended by departments of agriculture in various territories.

Fertilizer trials have been conducted in Jamaica for all crops, and some of the results have been encouraging. For coconuts, for instance, a crop which traditionally did not get much fertilizer, there are indications that the yield could be doubled with proper fertilization during the pre-bearing and bearing years; and it has been apparent, where coconut is intercropped with banana, that it responds well to fertilizers meant for the bananas.

Probably the most nearly controlled experiments in fertilizers have been in sugar cane. Even so, the lack of complete control of genetic and side factors has made it inadvisable for us to give an arithmetical relationship between yield increases and fertilizer application. In tree crops in particular, where genetic factors are difficult to control, the agronomists concerned prefer not to derive an exact arithmetical relationship between application and yields; so we have made some qualitative observations only.

The larger estates and better producers of sugar are probably nearing the optimum fertilizer application. Considering, therefore, that they grow the larger part of the crop, it is not considered that there is as much scope for large increases in yields as in mainly peasant crops. Rice is mainly a peasant crop, and fertilizer expenditures are not so marked as in some crops. We expect to find the highest fertilizer responses in crops such as bananas, cocoa, coffee and citrus, and also in coconut, which is being produced with banana on a larger scale and on a few estates is now being subjected to intensive production with fertilizer application.

Perhaps the most spectacular results are those gained after the fertilization of improved pasture. Cattle weights, which will usually double (in terms of liveweight per acre) as between improved and unimproved pasture, will often double again as between non-fertilized and fertilized pangola grass. In Jamaica some experiments showed a liveweight gain of 1,000 pounds per acre after fertilization of pangola grass. It is, therefore, possible to predict that the use of fertilizers is likely to be important in increasing beef and milk production, or in reducing the land area necessary for producing a given quantity of meat or milk.

Feeding stuffs

As with fertilizers, the use of imported balanced feeding rations in agriculture in the West Indies has grown considerably in recent years, as can be seen from the following figures:

Imports of animal feeding stuffs, by territories, 1950, 1955, 1958, and 1960

Commodity	Jamaica				Trinidad and Tobago				British Guiana			
	1950	1955	1958	1960	1950	1955	1958	1960	1950	1955	1958	1960
	1,000 pounds				1,000 pounds				1,000 pounds			
Grains and cereals	1,059	964	2,241	2,325	3,719	876	7,846	2,189	N.A.	210	151	118
Prepared meals	2,491	11,336	30,906	35,963	7,036	366	27,448	8,562	N.A.	4,997	1,993	15,089
Other kinds	—	802	1,129	1,303	1,267	—	2,635	6,363	N.A.	641	279	707

Source: Data and material developed during the study and other available data.

The most spectacular increase is in prepared meals, and about 75 % of this is poultry rations. The figure for this item fluctuate in Trinidad and Tobago somewhat, but it is thought that this to some extent follows the trends in the poultry industry due to Newcastle disease.

Rice, corn and pulses all contribute something to stock feed in the West Indies, but one of the most important locally produced livestock foods is coconut meal. This is traditionally fed to pigs, and an expansion in pig numbers usually accompanies expansion of the coconut industry. One expert (Ref. S. 5. 4.), however, suggests that coconut meal should be sold for export, and pigs should be fed on imported balanced rations. Pigs, sheep and goats are usually scavengers, and only a minority are fed a proper ration, however. While it is thought that the practice of rearing pigs on scientific feeding principles will increase, it seems unlikely that there will be a drastic revolution in feeding methods such as that which has recently taken place for poultry.

In line with our projections of livestock numbers, and allowing for more increase in scientific feeding, we project the import demand for feeding stuff as follows:

1960 and projected annual import demand for feeding stuffs in Jamaica, Trinidad and Tobago, and British Guiana

Commodity	1960	1965	1970	1975
	1,000 pounds			
Grains and cereals	4,632	5,790	7,133	8,569
Prepared meals	59,614	80,470	98,360	113,266
Other kinds	8,373	11,303	13,815	15,909

Recovery rates and intermediate products

Certain of the products with which we are concerned undergo some processing within the West Indies. This varies from simple milling processes, such as those deriving milled rice from rough rice, to fairly complicated secondary processes such as manufacturing canned fruit juices or soaps and cooking oils, or (in Jamaica only) condensed and evaporated milk. In this chapter we outline these processes and endeavour to indicate how efficiency in these processes affects the yield.

The rate at which sugar is recovered from sugar cane is partly a measure of efficiency. The rate may, however, be more closely related to the sucrose content of the sugar cane. This is determined partly by plant types but mainly by weather conditions. In some cases, sucrose content is affected by the sugar cane's having been burned, either deliberately or accidentally.

The efficiency in the factory itself varies according to the age of the machinery, standards of management and supervision. The size of the factory is also important. In St. Kitts, where there is one large centralised factory, the grinding rate is 125 tons of sugar cane an hour, while in Barbados and Jamaica, where there are a number of smaller, less efficient factories, the average grinding rate is 37.37 and 56.17 tons an hour, respectively.

In Table 11g we have shown the tons of sugar cane necessary to make a ton of sugar. It will be noted that there is a great deal of variation between territories, which is as much due to differing climatic conditions as to factory efficiencies. Since changes in recovery rates are likely to be marginal, we have not projected any change in the existing rates for the period 1960-75.

Rice milling rates, on the other hand, are expected to increase. This follows the change from a large number of small, poorly equipped mills to larger, more centralised mills utilising modern machinery. The estimated rates are shown in Table 12c, and account has been taken of these in our projections.

Both cocoa and coffee undergo some processing. This takes the form of fermenting in the case of cocoa and roasting in the case of coffee. Little information is available on recovery rates. We expect some increase in the efficiency of fermenting cocoa since here, too, there is a trend to more centralised fermentaries, but we have not been able to isolate this factor from others influencing yields. In coconuts, the problem of determining the number of nuts necessary to make a ton of copra or of raw oil is aggravated by the fact that there are usually primary processes that take place on the farm or plantation. Some estimated recovery rates are, however, shown in Table 18b. We do not expect any decline.

In sea island cotton, recovery rates can be influenced by ginning efficiency and by the proportion of stains to clean lint. We have not been able to project any changes since the present state of the industry (discussed elsewhere) is hardly likely to encourage investment into improved methods.

We have not been able to derive exact recovery rates for different types of citrus, and in Table 15b only the input of fresh citrus to processing firms is shown. Unfortunately no total product figures are available from processors, and as a considerable quantity enters home consumption we would not take exports as indicative of total supplies.

Cornmeal is manufactured in most parts of the West Indies, and the recovery rate varies from 50 % to 70 %. No change in this rate is predicted.

Considering products now which enter into a rather more advanced stage of manufacture, but whose main raw material is one of the products with which we are concerned, the most important are rum, condensed and evaporated milk, and oils and soaps.

Rum is not manufactured directly from sugar syrups except in some of the smaller territories. It is manufactured from molasses, a by-product of sugar. Therefore, rum does not compete with other end uses of sugar except in the sense that the greater the factory efficiency achieved, the less molasses may be available for making rum. We do not, however, conclude that this trend, which is a long term one, will materially affect supplies of rum within this period.

Condensed and evaporated milk is made in Jamaica at a condensery which was set up in 1940 to provide an outlet for local milk and to replace part of the large importation of this product. In 1957 a ban on the importation of milk and butterfat solids for manufacture was lifted, and the condensery was able to increase output by using imported raw materials. Sweetened condensed milk also utilises sugar and each 14 oz. tin contains the equivalent of 6 oz. of sugar and 1.7 pints of standard full-cream liquid milk. Thus in 1960 approximately 12 million pounds of sugar were utilised by the condensery.

Oils and fats products rank among the more important secondary products produced in the West Indies from local raw materials. Table 18c indicates the production in Jamaica, Trinidad and Tobago, Barbados, and all territories, of the main final products — soaps and edible fats and oils. Greater factory efficiency has improved recovery rates, and has enabled higher value products, such as toilet soaps, to be manufactured. There are also industries utilising vegetable fats which further other secondary processes for making such products as shampoos, toothpastes and cosmetics. We have included the main products only in this table. Projections of total supplies, Table 18d, are based on the assumption that factory capacity will be expanded to meet the demand, and imported vegetable oils will be utilised if local supplies are not forthcoming.

Apart from the condensery and rum manufacture, other manufacturing enterprises also utilise sugar as an input. Exact quantities are not available, but from our input-output table on Jamaica, Table 3. e. i, we see that in 1958 J£1,042,000 was spent on sugar products by the food manufacturing sector (which includes the condensery but excludes the rum industry) at the local price of approximately J£36 per ton. This would account for about 29,000 tons of sugar. In Trinidad and Tobago approximately BWI$2,600,000 worth of sugar for use as raw material was bought by the manufacturing sector in 1959. Many of the industries utilising sugar products are small confectioneries and other food plants. Substantial quantities are also used by manufacturers of alcoholic and non-alcoholic drinks.

Other than those mentioned there are a few minor industries utilising agricultural products. Fruits and vegetables are canned, mainly for local use, and the canning of sausages and bacon has recently started in Jamaica. In Jamaica, food manufacturing has been projected to grow at a moderate rate. (See projections of the growth of the economy of Jamaica, Table 3d.) Taking the area as a whole there is a fairly wide variety of food processing industries, and we have not been able to deal separately with a number of the minor ones.

Part Five

RECONCILIATION

Chapter 1

RECONCILIATION OF DEMAND AND SUPPLY AND IMPORT DEMAND

Having made independent estimates of demand based on projections of income growth, population growth, and calculated income elasticities of demand (see part three), and independent estimates of supply based on projections of acreages and yields (see part four), we now bring these together to estimate import demand, or to estimate how much will be available for export after local needs have been met. All estimates are in terms of quantities, and unless otherwise stated it is assumed that prices remain constant.

Sugar

The summary table for sugar is shown in Table 22a. Sugar is of course mainly an export crop and although very small quantities of specialised products are imported we feel that import substitution has been carried about as far as is possible, and that the small quantity of sugar imported is likely to continue to have approximately the same proportion to total consumption as in the base year. The main object of the summary table is thus to show how much will be available for export after local needs are met.

Sugar is used for manufacturing and for household use. These end uses are shown separately. It must be noted, however, that in Jamaica, household consumption includes sugar passing through the condensery, and in all territories sugar used for manufactured sugar preparations such as confectionery is included in household demand. The manufacturing demand includes mainly sugar utilised by fruit processors, cake manufacturers and beverage producers. It will be noted that the amount available for export in 1975 bears approximately the same relationship to total production as in 1958. The movement in local demand is slightly lower than that for local supply, but manufacturing demand, projected on the basis of our inter-industry tables (see part two and relevant tables referred to in Appendix III) increases at a slightly greater rate than supply. Nevertheless, on the basis of inquiries conducted for the surveys of economic growth (part two) we were not able to project a very substantial increase in manufacturing demand.

Rice

The pattern of rice production and trading emerges clearly from Table 22b. British Guiana, the main producer and supplier to other territories, becomes more important in this role as production in other territories declines and their demand increases. In British Guiana approximately 10 % of rice (rough rice, milled rice equivalent) is retained

by farmers for stock feed and seed, and a rather lower proportion for other territories. Since we do not predict a significant change in the structure of this industry, we assume that these ratios will remain constant. It will be noted that by 1975 British Guiana should be able to supply the needs of the importing territories and have about 125 million pounds left for export elsewhere. The other territories at present import negligible quantities of rice, mainly packaged rice from outside the region; but the steps which are being taken to improve the quality of British Guiana rice may reduce this even further.

Bananas

For bananas, we have not been able to consider quantities available for export purely as a surplus after home demand has been met. The banana industry is geared to the export trade and most bananas above a certain size are made available for export. The supply on the local market depends largely on the proportion of rejects, and the greater the number of bananas grown for export the greater will be the supply on the local market. We have therefore projected total supply and export supply on the one hand, and independently have projected local demand. If the residual between total production and export production falls short of or exceeds the projected demand we expect a price adjustment to follow. We have shown the deficiency or surplus in Table 22c. It will be noted that in Jamaica and Trinidad and Tobago a significant deficiency is projected after 1965. This would indicate a tendency for increased prices on the local market. In Trinidad and Tobago by 1970, we predict local demand actually exceeding total production. If exports continue, this would lead to a considerable increase in the local price of the product or, alternatively, Trinidad and Tobago might import substandard bananas from the Windward Islands for domestic use. An alternative assumption is that local price increases are sufficient to put Trinidad and Tobago out of the export market and make her a domestic supplier only. British Guiana is not at present a banana exporter, but plans are well advanced to introduce an export business to that territory, and our projections are based on the assumption that she will be an exporter by 1965.

Citrus

For citrus, although exporting is one of the main objectives of production, the local market is sufficiently strong for amounts available for export to be considered more in the nature of a surplus after local needs have been met. The main exporters are Jamaica, Trinidad and Tobago and Dominica; other territories produce mainly for domestic use. All the export figures in Table 22d are expressed in fresh fruit equivalents, since gross weights of tinned exported products would be misleading, and data on net weights are not available. Canned produce is exported from Trinidad and Tobago and Jamaica, and lime juice in barrels is exported from Dominica. Fresh fruit is exported also, but in Trinidad and Tobago and Jamaica, a greater part of the crop goes to processing than to export of fresh fruit.

Coffee, cocoa and tobacco

No estimates were made of demand for coffee, cocoa and tobacco products. The first two crops are not important, and for tobacco the budgetary data is thoroughly unreliable. Some projections of amounts likely to be used for local consumption were however made

for coffee and tobacco at the time that supply was being examined, and are presented in Tables 5.1.i and 5.1.ii. Local use of cocoa is negligible, and it can be assumed that initially all production is available for export (see Table 17d).

Table 5.1.i

Jamaica: Supply, demand, imports and exports of coffee, 1958 and projections

Year	Total production	Exports and stock	Imports	Local consumption
	1,000 pounds			
1958	5,626	2,865	127	2,888
1965	5,670	2,031	negligible	3,639
1970	6,889	2,586	negligible	4,303
1975	7,137	2,308	negligible	4,823

Note: Trinidad and Tobago is also a coffee producer, but no figures of production or local use are available. About 800 pounds of extracts were exported in 1958.

Table 5.1.ii

Jamaica: Supply, demand, imports and exports of tobacco and products, 1961 and projections

Year	Tobacco leaf, local production	Cigarettes, local production	Cigars			Estimated import requirement, cigarette tobacco
			Total production	Exports	Local consumption	
	1,000 lb.	Millions	Millions	Millions	Millions	1,000 lb.
1961	1,300	727	16.3	5.9	10.4	1,551
1965	1,360	750	17.5	7.0	10.5	1,675
1970	1,550	770	19.0	10.0	9.0	1,861
1975	1,800	800	21.5	11.5	10.0	2,094

Note: All territories grow tobacco for domestic use, but in the main it is a non-cash crop. St. Lucia, Grenada and Barbados, Trinidad and Tobago, and British Guiana make cigarettes locally, mainly from imported tobacco. No estimates of projected demand are available.

Cotton

Sea island cotton is produced in the West Indies for export as raw cotton (Table 5.1. iii). Cotton waste and stained cotton are retained for non-textile use in the domestic market — normally about 5 to 10 percent of production. The decline in production in the last 20 years is expected to continue through the 1975/76 crop year (Table 14f). Production is expected to continue to be exported through 1975.

Considerable import demand exists for textiles in the West Indies, mainly for piece goods. The United Kingdom presently supplies more than 80 percent of the area's piece goods requirements. As an example of import demand, textile imports by Jamaica average 3.7 million pounds for the period 1955-59 compared with 0.1 million pounds of clothing for the same period, but in raw cotton equivalent. Such imports increased to 6.5 million pounds and 0.9 million pounds respectively for the period 1960-62. Jamaican exports of cotton textiles in raw cotton equivalent decreased from 0.8 million pounds of raw cotton equivalent in 1955-59 to 0.4 million pounds in 1960-62. On the other hand, comparable exports of clothing in raw cotton equivalent for this period increased from less than 0.1 million pounds to 2.5 million pounds. This illustrates the practice of importing piece goods for the manufacture of clothing for export. Similar trends have developed in other West Indian areas, primarily in Trinidad and Tobago and Barbados.

Raw cotton imports for the area as a whole increased from 1.0 million pounds in 1950-54 to 5.0 million pounds in 1960, with projections of 6.0 million pounds for 1975 (Table 5.1.iii). Such imports, together with waste from domestic cotton production, represent internal consumption levels of raw cotton. Total cotton consumption estimates, taking into account textile and clothing imports and exports, are not possible since even rough estimates of the cotton textile and clothing trade for the area as a whole are lacking.

Table 5.1.iii

Production, imports, exports, and consumption of raw cotton in the West Indies in selected years

Year	Production 1/	Imports	Exports	Consumption
	1,000 pounds			
1950-54 (average)	1,869	986	1,700	1,155
1955-59 (average)	2,040	3,459	1,900	3,599
1960	898	4,996	800	5,094
1965	989	4,140	900	4,229
1970	739	4,956	700	4,995
1975	734	5,932	700	5,966

1/ Cotton production is shown by calendar year but is actually for split years; the year shown is the second year of the split year combinations. For example, 1960 production shown is actually the 1959/60 harvest.

Oils and fats

Projections have been made of demands for edible oils and fats. The local supply of these products has increased considerably in recent times and a further significant rise is predicted since it is assumed that factory capacity can expand almost as fast as demand. British Guiana imports some domestically produced oils and fats from other territories, but apart from these, imports are mainly of olive oil and other specialised products for which local substitutes might not be available. We have therefore projected the demand for imports separately in Table 22f. It is also assumed that Jamaica will expand factory capacity sufficiently to export small quantities of oils and fats. Soap is also produced in the region and supply figures are shown in Table 18c, but no projections of demand are available.

The demand for copra, the only important vegetable oil grown in the region, will naturally follow from the demand for oils, fats and soap. In Table 22e we have based the demand for copra on the needs of the factories, assuming they expand production of oils and fats to cater to the growth in demand for these products, and the production of soaps at approximately the same rate. It will be noted that all territories become net importers of raw materials in 1970 (in Jamaica supplies were projected to fall between 1965 and 1970 on the assumption that there would be hurricane damage in that period). Trinidad and Tobago and British Guiana are seen as persistent net importers.

Alternatively, it could of course be assumed that factory capacity increased only in line with availability of supplies of domestic raw materials. In this case we should have to assume that finished oils and fats products were imported in greater proportion than are indicated by Table 22f. By 1975 in Trinidad and Tobago approximately 18 % of the quantity shown as home produced would be imported, and in British Guiana approximately 30 % would be imported.

Roots and starch vegetables

According to our separate projections of demand and supply a fairly large deficiency in root crops will arise in all territories during this period. The reasons for this have been explained in part four. There is a fairly significant trade in roots within the islands of the Leewards, Windwards and Barbados, and some trade between these islands and Trinidad and Tobago. This latter trade, however, is unlikely to continue, if, as we predict, domestic deficiencies arise in other territories.

The imports of root vegetables from the outside world consist wholly of Irish potatoes, and it is assumed in the first instance that the deficiencies (see Table 22g) will be met by importing larger quantities of Irish potatoes. This does not necessarily follow however. It may be that part of the demand will go unmet or that different types of starch foods will be substituted. In any case we expect price increases in this product, and it is probable that final demand will depend, in this case, more on price elasticities and elasticities of substitution than on income elasticities.

Vegetables

For vegetables we expect some increase in local supplies but not in the scale of increases in demand, so that imports may be expected to increase. Imports at present consist mainly of onions, garlic, and to a lesser extent carrots and lettuce. We should expect imports of these to increase more than other green vegetables, and there are some local vegetables for which we should not expect imports to fill the deficiency, but rather for prices to increase as demand increases. The supply position of vegetables is however an unknown quantity, since a considerably high production could emerge without pressure on scarce land resources by means of more intensive production. This has been discussed elsewhere. Table 22h indicates the demand, supply and import position of vegetables.

Corn and pulses

Corn and pulses are in much the same position as roots and vegetables; only marginal increases (and in some cases decreases) in production can be expected, and in these crops, we do not expect much can be gained from more intensive methods. These products, particularly corn, are used for animal food. The demand for this use and for household use is shown, with import demand, in Tables 22i and 22j.

Livestock products

All territories except British Guiana are net importers of beef. Although some trade in live cattle has taken place between British and French islands in the eastern Caribbean the quantities are negligible compared with total demand and supply figures. In recent years Jamaica has reduced her dependence on overseas beef supplies, but we are not able to predict complete self-sufficiency in beef for any territory except British Guiana for which we predict a small surplus for export by 1970. In Table 22k we indicate the projected demand, supply and import position.

Other fresh meat (see Table 22L) includes pork, goat, and mutton of sheep and lamb. The latter is mainly imported, pork is mainly locally produced while goat is wholly locally produced. Considering these meats separately we found that a deficiency arose between supply of goat and projected demand. It is unlikely that goat would be imported, but imported mutton might well be substituted. Imports of pork are expected to increase little as supply will increase nearly as much as demand. There is, however, unlikely to be very much change in the sheep population.

There has been a revolution in the production of poultry meat and eggs in recent years and now the territories are practically self-sufficient in these items, which formerly were mainly imported or not available. In Trinidad and Tobago, however, the supply of poultry meat has been seriously reduced by Newcastle disease, and as income elasticity is high for this product in Trinidad and Tobago we expect her to continue to be a substantial net importer of poultry meat.

Generally speaking however, apart from Trinidad and Tobago and perhaps some continuation of a small quantity of imports into certain of the Leeward Islands and

Windward Islands, we expect the area to be self sufficient in these products. Tables 22m and 22n indicate that imports may be necessary to meet temporary shortages, but that on the whole supply approximates to demand.

Fresh milk cannot be imported, and the deficiencies which our projections show between demand and supply will not be filled by imports. We might expect some price increase or some substitution of other milk goods. On the whole, however, we expect households will simply do without fresh milk, and we would not like to say whether the income saved will be spent on food or non-food purchases. If more fresh milk became available, it would naturally act as a substitute for processed milk products. The opposite is not necessarily the case, however, and if the projected fresh milk demand is not met, we do not expect that there will be a significant increase in demand for milk products on this account alone. (See Table 22o.)

Jamaica is the only territory which has a condensery, and since 1957 she has imported milk solids for the condensery to make up the deficiency in local fresh milk production. In our projections (Tables 22o and 22p) we assume that the condensery supplies local demand for processed milk, except small imports of specialised products, and that imports of milk solids make up the deficiency of fresh milk to the condensery.

APPENDIX I

NOTE ON IMPORT DATA—TABLES 23a-23d

In tables 23a-23d we present tabulated summaries of the total imports, in quantity terms, of certain selected agricultural and other related products for Jamaica, Trinidad and Tobago, British Guiana and Barbados. For Jamaica and British Guiana the series run from 1945 to 1960, a sixteen year span. For Trinidad and Tobago the period extends from 1949 to 1960 and for Barbados from 1946 to 1958.

The selection of the items which are included in the summary tables has been determined mainly by the USDA contract requirements. We have, however, also included a few commodities which, though not expressly required for our immediate exercise, are none-the-less valuable as they are basic import items and possess much trading potential.

Except for one or two small points the list of commodities considered is self explanatory. Meat and Meat Preparations are presented as Group 1. This group is further subdivided into four main sub-groups: (i) Meat – Fresh, chilled or frozen (ii) Meat – Dried, salted, smoked or pickled (iii) Meat Preparations, and (iv) Meat in Airtight Containers. The main items of each sub-group are also shown.

Dairy Products and Eggs are presented as Group 2. The main items of this group are Milk, Cheese, Butter, Eggs and a smaller residual item of Miscellaneous Dairy Products. The only one of the above items which is further broken down is Milk. It is divided into its three main categories of (a) Tinned Milk (unsweetened) or, as it is commonly called, evaporated milk (b) Tinned Milk (sweetened), commonly called condensed milk and (c) all other forms of milk, whether Dried, Skimmed or Powdered.

Butter includes both table and cooking butter but excludes margarine and other butter substitutes which are included under Edible Oils and Fats. The quantity of eggs imported each year has not been included in the overall quantity total for Dairy Products and Eggs, as imports of eggs are recorded in various quantity units in the different territories. Some territories record imports of eggs in dozens while others record them in pounds, or some may even give both quantity measures. There are also instances when imports of eggs have been recorded in great hundreds 1/ as well as in plain numbers of eggs.

Group 3, Fish and Fish Preparations, is self explanatory, but in Group 4, Cereals and Cereal Preparations, the figures for Jamaica require some explanation. In this group, the Jamaica figures for Wheat and Wheat Flour include a small quantity of Rye and Flour of Rye between 1946 and 1953. After 1953 this item is recorded separately. After 1953

1/ A great hundred = 120.

too, imports of Counter and Baking Flour are entered under Baking Products (n.e.s.). This undoubtedly explains the substantial drop in the quantity of Wheat and Wheat Flour imported in Jamaica after 1953 which is correspondingly made up by the substantial increase in Baking Products. These individual movements do not, however, disturb the overall pattern.

Deciduous Fruits are shown as Group 5. The group is divided into three main sub-groups: (i) Fresh, (ii) Dried and (iii) Preserved or Tinned. For Fresh, we show Apples and Grapes separately, and group all other Fresh Deciduous Fruits together. In Barbados, we have had to simply make an omnibus item of all Fresh Fruits. Dried fruits include such items as raisins, currants and prunes, whereas for Preserved and Tinned we include such items as canned pears, peaches, apricots and other preserved fruits. It is not worthwhile to extend the group beyond these items.

The most we could do in the case of Group 6, Vegetables, was to abstract the principal items of Irish Potatoes, Peas, Beans and Lentils and Tomatoes, and group all other vegetables together as "Other Fresh Vegetables". In Barbados, tomatoes are included with other fresh vegetables. The other category of vegetables, Tinned and Preserved Vegetables, also includes dried vegetables in some instances.

For Group 7, Beverages (Non-Alcoholic), we have shown only the three main items of cocoa, coffee and tea. Cocoa includes both raw and powdered cocoa while coffee includes both raw and ground coffee as well as coffee extracts and essences.

Group 8, Feeding Stuffs for Animals, corresponds to Division 08 of the Standard International Trade Classification, Feeding Stuffs for Animals (not including Unmilled Cereals). Sub-group (a) Grains and Cereals, includes such things as hay and fodder, bran and pollard, while sub-group (b) includes feeds like linseed cake and meal, and fish and meat meal.

Group 9, Edible Oils and Fats, has had to be restricted to the three main items of margarine and other butter substitutes, lard and lard substitutes and cooking oil, all of which are grouped together to comprise the overall group. The other groups are self-explanatory.

The quantity unit used throughout is mainly thousand pounds. The difficulty involved with Eggs has already been stated and the unit used on each tabulated summary is clearly stated. The other notable exceptions are Molasses and Syrups, which quote quantities in thousand liquid gallons, and Preserved and Tinned Fruits, which quote quantities in thousand liquid gallons and thousand pounds. Cotton and Cotton Piece Goods are expressed in thousand square yards while Fertilisers, which refer only to imports of manufactured fertilisers, are in thousand tons.

A dash in any column signifies that the quantity of the item concerned was less than one thousand units. We have also corrected all units to the nearest thousand, so that where imports are less in quantity than 500 they are corrected downwards and vice versa. All blank spaces mean that the information was not available.

The principal sources of the data presented in Table 23a-23d and discussed in this Appendix are the Annual Trade Returns for each territory, while our subsidiary sources of information were mainly the Caribbean Yearbooks or Colonial Office Annual or Biennial Reports on the individual territories. The problem of reconciling data from these various sources did not present itself.

APPENDIX II

MAIN SOURCES AND REFERENCES

1. The growth of the economy

Population

Pop. 1. West Indies Census. Jamaica, 1943.
2. West Indies Census. Eastern Caribbean, 1946.
3. West Indies Census. British Guiana, 1946.
4. West Indies Census. 1960, provisional reports, all territories.

Income

N. I. 1. National Income Statistics No. 1 of 1960. Federal Statistics Office, Port-of-Spain.
2. National Accounts, Income and Expenditure. Department of Statistics, Jamaica, 1950-1957 and 1958, 1959.
3. The National Income of Trinidad, 1951-1957, and 1958-1959. Central Statistical Office. Port-of-Spain, Trinidad.
4. The National Income of Montserrat, St. Kitts-Nevis, Anguilla and Antigua. O'Loughlin, Social and Economic Studies Vol. 8, Nos. 2, 3 and 4. and Vol. 10 No. 3.
5. A National Accounts Study of the Economy of Barbados. Social and Economic Studies, Vol. 9 No. 2.
6. National Income of Barbados, 1956-1959. Statistical Service, Government of Barbados.
7. The National Economic Accounts of British Guiana. Percival and D'Andrade, Government of British Guiana 1955.
8. The Economy of British Guiana 1952-1956, O'Loughlin. Social and Economic Studies, Vol. 8 No. 1.
9. Papers Relating to Development Planning. Leg/C No. 6/1950, British Guiana.
10. The Economic Development of British Guiana. International Bank for Reconstruction and Development, 1953.
11. Development Programme, 1960-1964. British Guiana, Sessional Paper 5/1959, Leg Co.
12. Report of the British Guiana Development Programme. 1960-1964, Sessional Paper No. 2/1960 Leg/Co., British Guiana.
13. Inter-Industry Table for British Guiana. Kundu. (Cyclostyled Report) 1962

2. Long Term Projections of Demand

D. 1. West Indian Household Budgets. Cumper, Social and Economic Studies, Vol. 9. No.3.
D. 2. Household Expenditure Survey 1953. Department of Statistics, Jamaica.
D. 3. Food Balance Sheet for Jamaica. Agricultural Department, Jamaica (Cyclostyled 1962).
D. 4. Household Expenditure Survey. Trinidad and Tobago (Cyclostyled).
D. 6. Household Expenditure Survey. British Guiana, 1956.
D. 7. Food Balance Sheet for Trinidad and Tobago. Published in Annual Statistical Digest, Central Statistics Office, Port-of-Spain 1959.
D. 8. The World Sugar Economy in Figures, 1880-1959. Food and Agricultural Organisation.

3. Long Term Supply

General

G. 1. Agricultural Statistics. Series 2, Nos. 1-8, Federal Statistics Office, Port-of-Spain.
G. 2. Agricultural Statistics, 1954, 1955. Department of Statistics. Kingston, Jamaica.
G. 3. Agricultural Statistics for Jamaica, 1958 (unpublished). Department of Agriculture, Jamaica.
G. 4. Agriculture in British Guiana, Census 1952,1953. Department of Agriculture, British Guiana.
G. 5. Census of Agriculture, Jamaica 1943 (see Ref. Pop. 1).
G. 6. Census of Agriculture, Eastern Caribbean, 1946 (see Ref. Pop. 2 and 3).
G. 7. Land Utilisation and Agricultural Production in Trinidad and Tobago, 1956 and 1957. Central Statistical Office, Port-of-Spain.
G. 8. Some Statistical Tables on West Indian Agriculture. D. T. Edwards, Institute of Social and Economic Research, Jamaica (Cyclostyled).
G. 9. Competitive Position of Jamaican Agricultural Exports. Clarke, Social and Economic Studies, Special Number, Dec. 1961.

Commodities

S. a. 1. Handbook of British West Indies Sugar Association. Annual.
S. a. 2. Annual Crop Returns, Sugar Producers Associations in various territories.
S. a. 3. Crop Enquiries Series No. 6, 1946-49, Sugar, Caribbean Commission.
S. a. 4. Commission of Enquiry into the Sugar Industry of Trinidad. Sculbury et al.
S. a. 5. Report of Commission of Enquiry into Sugar Industry in Jamaica. Goldenberg et al.
S. a. 6. Report on Sugar Industry of Antigua. Rottenberg.
S. a. 7. Sugar Industry in Barbados, A Method for Calculating the Price of Cane. G. T. Sheppard.

S. b. 1. Rice Marketing Boards, Annual Reports, 1950-1961, British Guiana.
S. b. 2. A Survey of the Rice Industry. Steer and Benson, Central Statistical Office and Department of Agriculture, Trinidad.
S. b. 3. The Rice Sector in the Economy of British Guiana, O'Loughlin, Social and Economic Studies, Vol. 7. No. 2.

S. b. 4. Caribbean Market Survey - Rice, 1957. Caribbean Commission.

S. c. 1. Reports of the Banana Board. Jamaica 1952-1955.
Reports of the A.I.B.G.A. Jamaica.
Reports of WINBAN. Windward Islands.

S. d. 1. Reports of Citrus Growers Association.
Report on Citrus Production Survey, 1955-1956. Department of Statistics, Jamaica.

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A Guide to Coffee Culture in Jamaica. Moss, Ministry of Agriculture and Lands.
S. e. 3. The rehabilitation of the Coffee Industry in Jamaica. A. J. Wakefield, 1945.
S. e. 4. Coffee Board Annual Reports. Ministry of Agriculture and Lands.
S. e. 5. Report on Investigation into the Survival of Coffee Seedlings.
Issued to farmers in 1954, and surveys conducted in 1957 and 1958.
Ministry of Agriculture and Lands, Jamaica.

S. F. 1. Reports of Cocoa Board, Jamaica. Annual.
S. F. 2. Reports of Cocoa Board, Trinidad and Tobago. Annual.
S. F. 3. Annual Reports of Department of Agriculture, Grenada.
S. F. 4. Report to International Cocoa Conference de Vertevil. Trinidad and Tobago.

S. G. 1. Annual Reports of the West Indies Sea Island Cotton Association. Annual.

S. h. 1. Annual Reports of the Coconut Industries Board Jamaica. Annual.
S. h. 2. Annual Report of the Coconut Board Trinidad. Annual.
S. h. 3. First Report of the Research Department. C.I.B., Jamaica.
S. h. 4. Proceedings of the West Indies Oils and Fats Agreements. Annual (on file).

S. i. 1. The Marketing of Domestic Food Crops in Jamaica. F.A.O., 1961 (Cyclo-styled Report).
S. i. 2. Vegetable Trade in the Caribbean. External Trade Bulletin No.7, 1950, Caribbean Commission.

S. j. 1. Report by a Mission from the Milk Marketing Board of England and Wales on Dairy Industry in Jamaica. Jamaica Government Printer, 1957.
S. j. 2. Report of the Cattle Industry Enquiry Board. Jamaica Government Printer, 1952.
S. j. 3. Sugar Manufacturers Association, Various Reports of the Livestock Research Division.
S. j. 4. Report of Pig Breeding in Jamaica 1957. Department of Agriculture and Lands.

APPENDIX III

Table 1

Gross domestic product per capita for selected countries of the Western Hemisphere, 1958

Country	U.S. dollars
United States	2,318
Canada	1,761
Venezuela	1,181
Argentina	836
Puerto Rico	532
Trinidad and Tobago	498
Brazil	476
Cuba 1/	401
Panama	394
Chile	378
Costa Rica	353
Jamaica	349
Mexico 2/	282
British Guiana	266
Dominican Republic 1/	232
Barbados, Leeward Islands and Windward Islands	208
Honduras	174
Guatemala	166
Ecuador	164
Columbia	162
Paraguay	129
Peru	129

1/ GDP at Market Price — will give a slightly higher result than GDP at Factor Cost.

2/ National Income — will give a slightly lower result than GDP at Factor Cost.

Source: Data and material developed during the study and other available data.

Note: Countries for which figures are not available include Bolivia, Uruguay, French Guiana, Surinam, El Salvador, Nicaragua and Haiti. Most of these countries are thought to be in the lower range of incomes.

Table 2a

End-of-year estimates of population, by territories, 1947 through 1959

Territories	1947	1948	1949	1950	1951	1952	1953	1954	1955	1956	1957	1958	1959
1. Barbados	199,021	202,669	206,838	211,641	215,128	219,015	222,942	227,550	229,113	230,500	232,227	236,812	240,799
2. Jamaica	1,340,395	1,362,101	1,388,917	1,417,002	1,443,751	1,471,624	1,503,030	1,531,933	1,553,663	1,579,473	1,610,573	1,650,144	1,683,279
3. Trinidad and Tobago	586,700	602,814	618,603	632,450	648.700	662,850	678,300	697,600	720,800	742,500	764,900	788,600	817,050
4. Grenada	73,564	74,719	75,913	77,445	80,056	82,086	84,007	85,599	88,212	89,068	90,852	91,689	94,885
5. St. Vincent	63,868	64,985	66,164	67,544	70,140	71,392	73,132	75,200	76,778	78,600	79,000	80,284	83,181
6. St. Lucia	81,143	82,603	85,321	87,144	81,761	82,958	84,812	86,219	88,150	89,862	91,102	92,089	93,760
7. Dominica	50,798	51,763	52,858	54,577	55,914	57,022	59,137	61,398	63,086	64,008	64,230	66,645	59,479
8. Antigua	43,442	43,504	44,532	45,611	46,941	48,214	49,692	50,908	52,454	54,228	55,967	57,777	58,839
9. Montserrat	13,283	13,504	13,508	13,535	14,000	13,587	13,000	14,145	14,400	14,300	14,345	14,465	14,538
10. St. Kitts-Nevis-Anguilla	45,859	46,288	46,928	48,501	50,062	51,044	52,057	54,327	53,598	55,300	57,531	58,579	59,700
11. British Guiana	390,857	402,615	414,306	425,156	436,431	453,800	465,420	479,000	492,980	507,000	523,660	539,940	557,960
Total	2,888,930	2,947,565	3,013,888	3,080,606	3,142,884	3,213,592	2,285,529	3,363,879	3,433,237	3,504,899	3,584,387	3,677,024	3,763,470

Sources:

1. Annual Abstract of Statistics, Govt. of Barbados.

2. Annual Abstract of Statistics, Govt. of Jamaica.

3. (i) Annual Statistical Digest, Govt. of Trinidad.
(ii) Annual Report on Population and Vital Statistics, Govt. of Trinidad and Tobago.

4-10. Principal source: Registrary General's Annual Report for each island.
Subsidiary sources: Colonial Office Annual (and Biennial) Reports and Caribbean Yearbook.

11. Colonial Office Annual Reports for British Guiana.

Table 2b

Estimates of population, by territories, 1946 through 1960, and projections on the basis of individual growth rates

Rate and year	Barbados	Jamaica	Trinidad and Tobago	Windward Islands	Leeward Islands	British Guiana	Total
Exponential growth rates	1.325 %	1.566 %	2.819 %	1.592 %	1.309 %	2.849 %	
Year				Population			
1946 1/	192,800	1,295,476	577,970	251,776	102,333	375,701	2,776,056
1947	195,810	1,315,900	573,910	255,780	103,650	386,560	2,831,610
1948	197,990	1,336,700	590,340	259,900	105,010	397,720	2,887,660
1949	200,610	1,357,800	607,210	264,060	106,410	409,220	2,945,310
1950	203,310	1,379,300	624,560	268,310	107,810	421,030	3,004,320
1951	206,300	1,401,000	641,140	272,610	109,220	433,220	3,063,490
1952	208,750	1,423,100	660,690	276,980	110,660	445,740	3,125,920
1953	211,530	1,442,400	679,670	282,320	112,220	458,620	3,186,760
1954	214,350	1,468,400	699,120	285,940	113,600	471,880	3,253,290
1955	217,210	1,491,600	719,110	290,550	155,080	485,510	3,319,060
1956	220,120	1,515,200	739,670	295,190	116,610	499,530	3,386,320
1957	223,040	1,539,100	760,820	299,920	118,150	514,000	3,455,030
1958	226,200	1,563,100	782,690	304,780	119,730	528,840	3,525,340
1959	229,030	1,588,100	804,980	309,640	121,310	544,110	3,597,170
1960 1/	232,085	1,613,148	827,957	314,649	122,920	558,769	3,669,528
Projection 1							
1965	247,980	1,744,400	953,290	340,380	131,250	646,530	4,063,830
1970	264,970	1,886,500	1,097,600	368,970	140,070	744,400	4,502,510
1975	283,130	2,040,100	1,263,800	399,460	149,540	858,340	4,994,370

1/ Census year.

Table 2c

Net migration from the West Indies, by territories, 1946 through 1960

Territories	1946	1947	1948	1949	1950	1951	1952	1953	1954	1955	1956	1957	1958	1959	1960
1. Barbados	1,300	443	171	1,023	1,100	-306	-218	-380	-424	-3,143	-4,186	-2,197	-182	-999	-231
2. Jamaica	2,337	1,840	-1,993	-318	-1,711	-4,459	-3,880	-4,283	-8,400	-18,900	-17,600	-15,200	-6,800	-16,300	-28,300
3. Trinidad and Tobago	1,546	3,567	-533	-345	-1,179	-784	-1,566	-45	-388	-220	-609	-875	-3,747	-4,845	-3,911
4. Grenada	-722	-411	-236	-492	-374	850	166	-278	-122	-1,100	-1,605	-1,961	-2,443	-2,175	-2,022
5. St. Vincent	455	-682	-397	-516	-260	656	-537	-202	76	-927	-848	-1,089	-1,638	-1,538	
6. St. Lucia	-160	-662	75	1,354	187	63	-463	-59	-655	-584	-732	-1,414	-1,696	-1,145	-1,996
7. Dominica	1,234	534	-136	-3	819	246	120	819	675	15	-567	-1,464	N. A.	N. A.	N. A.
8. Antigua	N. A.	N. A.	N. A.	N. A.	-36	198	191	390	88	312	354	487	551	-146	N. A.
9. Montserrat	-948	-715	-6	-222	-181	N. A.	N. A.	-123	211	36	-328	-155	-117	N. A.	N. A.
10. St. Kitts-Nevis-Anguilla	N. A.	N. A.	N. A.	N. A.	678	531	-203	-268	-96	-1,099	-808	248	-650	-1,061	N. A.
11. British Guiana	192	36	883	60	-477	-617	-746	-1,185	-802	-1,255	-1,714	-947	-1,075	-451	-3,206
Total	5,224	3,950	-2,172	541	-1,434	-3,622	-7,136	-5,614	-9,837	-26,865	-28,643	-24,567	-17,797	-28,660	-35,844

Source: Data and material developed during the study and other available data.

Table 3a

Jamaica: Income, expenditure and product, 1950 through 1960

Item	1950	1951	1952	1953	1954	1955	1956	1957	1958	1959	1960
At current prices						J£1,000					
Consumption by persons	67,800	76,880	89,220	97,262	106,569	121,029	131,339	145,842	155,610	169,197	183,174
General government consumption expenditure	6,700	8,810	9,013	10,709	11,331	13,156	16,221	18,032	19,090	21,886	24,865
Gross domestic fixed capital formation	6,930	12,160	13,695	14,150	17,300	21,470	38,783	52,104	47,397	46,072	51,705
Increases in stocks	950	475	849	1,025	1,511	3,119	2,838	5,215	3,459	5,029	3,283
Exports of goods and services	18,600	20,570	24,451	31,444	36,967	40,998	45,908	60,245	61,243	64,433	75,527
Less imports of goods and services	-23,687	-29,003	-33,970	-38,775	-44,257	-52,127	-63,672	-75,037	-73,315	-78,319	-89,135
Total expenditure: Gross domestic product at market prices	77,293	89,892	103,258	115,815	129,421	147,645	171,408	206,401	213,484	228,298	249,419
Less indirect taxes	-7,688	-8,837	-9,048	-9,767	-10,298	-11,763	-13,475	-14,997	-15,704	-17,685	-18,885
Plus subsidies	515	625	752	644	559	529	563	458	930	908	717
Gross domestic product at factor cost	70,120	81,680	94,962	106,692	119,682	136,411	158,496	191,862	198,710	211,521	231,251
Less factor income payments to rest of world	+35	-119	+557	-929	-1,282	-1,971	-4,708	-6,803	-6,491	-7,094	-8,623
Gross national product	70,155	81,561	95,519	105,763	118,400	134,440	153,788	184,059	192,219	204,427	222,628
Less depreciation	-3,900	-4,205	-4,890	-6,767	-8,460	-9,332	-10,555	-14,064	-14,954	-15,797	-17,719
National income	66,255	77,356	90,629	98,996	109,940	125,108	143,233	170,995	177,265	188,630	204,909

Source: Data and material developed during the study and other available data.

Table 3b

Jamaica: Growth rates of sectors at constant prices, 1953 through 1959

Sector 1/	1953	1954	1955	1956	1957	1958	1959	Average
Gross domestic product at constant factor cost:				Million J£				
Export agriculture	5.0	5.5	6.0	5.8	5.6	5.7	6.1	
Sugar cane growing	6.2	6.9	7.0	6.6	7.2	6.4	7.5	
Domestic agriculture	11.2	11.6	12.0	11.7	11.9	12.8	13.7	
Livestock and fishing	1.2	1.2	1.4	1.6	1.8	1.9	2.1	
Mining and quarrying	2.9	5.9	7.0	8.7	14.3	14.7	14.3	
Manufacturing 1: food, drink and tobacco	9.6	10.6	11.4	11.9	12.9	13.0	13.6	
Manufacturing 2, 3, and 4	5.8	6.3	7.5	8.8	10.8	10.8	13.0	
Construction	10.6	11.1	14.3	20.1	23.1	21.9	22.2	
Public utilities	.9	1.0	1.1	1.2	1.4	1.5	1.8	
Distribution	20.1	22.3	24.4	25.8	30.7	31.8	33.9	
Banking, insurance and real estate	5.6	6.5	7.2	7.4	8.3	9.3	9.8	
Transport, etc.	8.2	8.7	9.8	10.5	12.4	12.3	12.7	
Ownership of dwellings	5.4	5.7	6.0	6.2	6.2	6.1	5.3	
Services	15.4	17.4	19.2	20.9	22.5	23.5	24.9	
Government	9.1	9.7	9.2	11.3	12.4	12.3	13.6	
Total	117.2	139.4	143.5	158.5	181.5	184.0	194.5	
Percentage change from preceding year:					Percent			
Export agriculture		10.0	9.1	-3.3	-3.4	1.8	7.0	3.5
Sugar cane growing		11.3	1.4	-5.7	9.0	-11.1	17.2	3.7
Domestic agriculture		3.5	3.5	-2.5	1.7	7.6	7.0	3.5
Livestock and fishing		—	1.7	1.4	1.3	.6	1.1	1.0
Mining and quarrying		103.0	18.6	24.3	64.4	2.8	-2.7	30.2
Manufacturing 1: food, drink and tobacco		10.4	7.5	4.4	8.4	2.3	4.6	3.8
Manufacturing 2, 3, and 4		8.6	19.0	17.3	22.7	—	20.4	14.7
Construction		4.7	28.8	40.6	15.0	-5.2	1.3	14.2
Public utilities		11.1	10.0	9.9	16.7	7.1	20.0	12.5
Distribution		10.9	9.4	5.7	18.9	3.6	6.6	9.2
Banking, insurance and real estate		16.1	10.8	2.8	10.9	12.1	5.4	9.7
Transport, etc.		6.1	7.4	7.1	18.1	-.8	3.2	6.8
Ownership of dwellings		5.6	5.3	3.3	—	-1.6	-13.1	-.1
Services		12.9	10.3	8.9	7.7	4.5	5.9	8.4
Government		6.6	-5.2	11.9	9.7	7.3	10.6	6.8
Total		10.4	10.0	10.5	14.6	1.9	5.7	8.8

1/ See note to Table 3d.

Source: Data and material developed during the study and other available data.

Table 3c

Jamaica: Income, expenditure and product, 1958 and projections

Item	1958		1965		1970		1975	
	J£1,000	J£per capita	J£1,000	J£per capita	J£1,000	J£per capita	J£1,000	J£per capita
At 1958 prices								
Consumption by persons	155,610	100	215,869	124	274,720	146	325,761	160
General government consumption expenditure	19,090	12	28,121	16	38,546	20	49,337	24
Gross domestic fixed capital formation	47,397	30	58,900	34	79,212	42	93,530	46
Increases in stocks	3,459	2	4,513	3	5,217	3	6,832	3
Exports of goods and services	61,243	39	103,425	59	126,370	67	151,415	74
Less imports of goods and services	-73,315	-47	-107,331	-62	-136,960	-73	-158,080	-77
Total expenditure: gross domestic product at market prices	213,484	137	303,497	174	387,105	205	468,795	230
Less indirect taxes	-15,704	-10	-20,250	-12	-27,521	-15	-33,109	-16
Plus subsidies	930	—	1,121	—	1,250	1	1,400	—
Gross domestic product at factor cost	198,710	127	284,368	163	360,834	191	437,086	214
Less factor income payments to rest of world	-6,491	-4	-11,302	-7	-12,459	-7	-13,732	-7
Gross national product	192,219	123	273,066	173	348,375	184	423,354	207
Less depreciation	-14,954	-10	-23,150	-13	-29,588	-15	-36,715	-18
National income	177,265	113	249,916	143	318,787	169	386,639	189
Population . . . . Number	1,563,100		1,744,548		1,886,683		2,040,398	

Table 3d

Jamaica: Gross domestic product by industrial origin, 1958 and projections

Sector	1958		1965		1970		1975	
	Million BWI$	Percent	Million BWI$	Percent	Million BWI$	Percent	Million BWI$	Percent
Sugar cane growing (including manufacture of sugar)	10.4	5.2	14.2	5.0	17.2	4.8	19.4	4.4
Export agriculture	6.6	3.3	9.3	3.3	10.3	2.9	11.3	2.6
Domestic agriculture	10.0	5.0	11.5	4.0	12.3	3.4	12.9	3.0
Livestock and fishing	5.6	2.8	7.7	2.7	8.9	2.5	10.2	2.3
Mining and quarrying	17.5	8.8	25.8	9.1	35.1	9.7	42.1	9.6
Construction	24.5	12.3	31.9	11.2	41.0	11.4	48.6	11.1
Manufacturing 1	8.7	4.4	10.1	3.6	11.3	3.1	13.2	3.0
Manufacturing 2	2.3	1.2	3.3	1.2	3.6	1.0	3.8	.9
Manufacturing 3	7.0	3.5	10.6	3.7	13.3	3.7	14.8	3.4
Manufacturing 4	3.0	1.5	4.5	1.6	5.3	1.5	6.1	1.4
Public utilities	1.9	.1	4.2	1.5	4.8	1.3	5.3	1.2
Distribution	31.9	16.1	44.6	15.6	54.9	15.2	77.2	17.7
Transport, etc.	11.9	5.9	17.3	6.1	20.9	5.8	29.0	6.6
Ownership of dwelling	6.7	3.4	10.2	3.6	12.0	3.3	16.7	3.4
Services	37.4	19.8	59.9	21.0	83.2	23.0	93.6	21.5
Government	13.1	6.6	19.3	6.8	26.7	7.4	32.1	7.3
Gross domestic product	198.7	100.0	284.4	100.0	360.8	100.0	437.1	100.0

Note: Figures in Tables 3b are based on 1956 prices. There are small differences in the industrial content of sectors as between these tables, i.e., sugar manufacturing is in sugar cane growing (including manufacture of sugar) above and in Manufacturing 1 in Table 3b. Export agriculture includes its own distributive activities above. They are in Distribution in Table 3b. These differences (and others of negligible importance) arose because it was not possible to re-arrange data for 1950-59 in classifications thought most desirable for projections.

Table 3e.i

Jamaica: Inter-industry table, 1958

Sales by —	Purchases by —										
	Sugar	Export agri-culture	Domestic agri-culture	Livestock and fishing	Mining	Construc-tion	Manufac-turing 1	Manufac-turing 2	Manufac-turing 3	Manufac-turing 4	Public utilities
	J£1,000										
Sugar	-	-	-	-	-	-	1,042	-	-	-	-
Export agriculture	-	-	30	-	-	-	30	-	-	-	-
Domestic agriculture	154	-	-	859	121	116	2,757	285	1,091	141	-
Livestock and fishing	-	-	-	-	-	22	2,872	75	-	-	-
Mining	-	-	-	-	-	509	-	-	751	-	-
Construction	2,389	538	334	326	1,801	-	406	-	974	113	78
Manufacturing 1	-	-	-	161	-	-	-	147	-	-	-
Manufacturing 2	147	279	84	-	-	-	-	-	23	23	-
Manufacturing 3	92	121	-	-	-	6,742	436	87	-	90	-
Manufacturing 4	93	120	84	155	-	176	79	53	50	-	7
Public utilities	134	67	56	25	-	235	108	68	101	21	-
Distribution	820	1,224	2,471	1,028	1,175	19,147	8,687	571	2,258	571	927
Transport, etc.	1,609	800	477	192	1,868	1,470	691	77	199	332	85
Ownership of dwelling	-	-	-	-	-	-	-	-	-	-	-
Services	382	248	169	165	715	1,142	298	151	245	62	165
Tourism	-	-	-	-	-	-	-	-	-	-	-
Saving and investment	-	-	-	-	-	-	-	-	-	-	-
Household expenditure	7,836	3,768	2,558	2,336	3,227	19,444	4,652	1,533	4,345	1,933	737
Profit appropriation	2,592	2,855	7,471	3,264	14,318	5,089	4,056	744	2,671	1,099	1,172
Government	1,602	83	180	144	765	233	2,775	49	34	25	13
Rest of world	35	89	-	-	688	5,222	2,435	2,158	867	1,781	420
Total	17,885	10,192	13,914	8,655	24,678	59,547	31,324	5,998	13,609	6,191	3,604

Source: Data and material developed during the study and other available data.

Sales by —	Purchases by — (continued)										
	Distribution	Transport, etc.	Ownership of dwelling	Services	Tourism	Saving and investment	Households	Profit appropriation	Government	Rest of world	Total
	J$1,000										
Sugar	3,291	-	-	34	-	582	582	659	-	11,695	17,885
Export agriculture	-	-	-	-	-	163	-	-	-	10,295	10,192
Domestic agriculture	4,267	-	-	364	-	43	3,472	1	193	50	13,914
Livestock and fishing	2,382	-	-	276	-	201	2,882	-	45	-	8.655
Mining	-	-	-	51	-	575	-	439	58	22,295	24,678
Construction	1,266	2,566	899	793	-	46,897	-	-	167	-	59,547
Manufacturing 1	16,158	118	-	25	-	29	13,729	-	34	923	31,324
Manufacturing 2	4,544	118	-	-	-	-30	142	12	39	617	5,998
Manufacturing 3	4,799	-	-	-	-	-143	900	11	74	400	13,609
Manufacturing 4	1,106	237	-	222	-	35	3,347	57	74	296	6,191
Public utilities	401	154	135	418	-	34	1,070	142	435	-	3,604
Distribution	-	7,361	-	2,809	4,423	1,790	86,153	-	1,245	1,319	139,879
Transport, etc.	2,606	-	-	24	974	-	12,378	129	1,580	2,070	27,561
Ownership of dwelling	-	-	-	-	-	-	8,101	-	81	-	8,182
Services	3,396	1,486	136	-	7,767	-	26,142	-	1,227	1,891	45,787
Tourism	-	-	-	-	-	-	-	-	-	13,164	13,164
Saving and investment	-	-	-	-	-	-	10,603	19,334	8,019	13,794	51,750
Household expenditure	15,581	6,881	-	19,551	-	-	-	57,649	13,324	4,382	169,837
Profit appropriation	16,320	5,057	6,683	17,876	-	-	-	-	386	-	91,653
Government	10,611	421	329	684	-	-	3,116	6,726	-	823	28,613
Rest of world	53,151	3,162	-	2,660	-	1,900	1,320	6,494	1,632	-	84,014
Total	139,879	27,561	8,182	45,787	13,164	51,750	169,837	91,653	28,613	84,014	

Table 3e. ii

Jamaica: Inter-industry table, 1965

Sales by —	Purchases by —										
	Sugar	Export agri-culture	Domestic agri-culture	Livestock and fishing	Mining	Construc-tion	Manufac-turing 1	Manufac-turing 2	Manufac-turing 3	Manufac-turing 4	Public utilities
	J£1,000										
Sugar	-	-	-	-	-	-	1,209	-	-	-	-
Export agriculture	-	-	42	-	-	-	35	-	-	-	-
Domestic agriculture	209	-	-	1,345	133	128	3,198	442	1,200	155	-
Livestock and fishing	-	-	-	-	-	42	4,456	116	-	-	-
Mining	-	-	-	-	-	865	-	-	1,277	-	-
Construction	3,249	753	367	519	2,062	-	471	-	1,266	147	101
Manufacturing 1	-	-	-	305	-	-	-	227	-	-	-
Manufacturing 2	227	432	130	-	-	-	-	-	36	36	-
Manufacturing 3	125	169	-	-	-	9,764	506	135	-	136	-
Manufacturing 4	126	168	92	295	-	229	91	82	76	-	11
Public utilities	222	124	82	48	-	506	225	145	253	52	-
Distribution	930	1,643	2,811	1,214	1,998	24,369	9,976	745	3,310	837	2,039
Transport, etc.	2,148	1,120	525	365	2,876	1,911	802	119	300	498	187
Ownership of dwelling	-	-	-	-	-	-	-	-	-	-	-
Services	520	347	186	313	1,216	1,585	346	234	370	93	363
Tourism	-	-	-	-	-	-	-	-	-	-	-
Saving and investment	-	-	-	-	-	-	-	-	-	-	-
Household expenditure	10,657	5,275	3,014	3,438	4,786	25,277	5,396	2,278	6,561	2,900	1,621
Profit appropriation	3,525	3,997	8,518	4,252	21,341	6,616	4,705	1,053	4,033	1,649	2,578
Government	2,179	116	198	273	1,300	303	3,219	75	51	38	29
Rest of world	48	125	-	-	1,170	6,789	2,825	3,346	1,309	2,608	924
Total	24,165	14,269	15,965	12,367	36,882	78,384	37,460	8,997	20,042	9,149	7,853

Sales by —	Purchases by — (continued)										
	Distribution	Transport, etc.	Ownership of dwelling	Services	Tourism	Saving and investment	Households	Profit appropriation	Government	Rest of world	Total
	J£1,000										
Sugar	4,334	-	-	46	-	750	700	-	-	17,126	24,165
Export agriculture	-	-	-	-	-	-221	-	-	-	14,413	14,269
Domestic agriculture	4,622	-	-	400	-	47	3,819	-	212	55	15,965
Livestock and fishing	2,925	-	-	524	-	382	3,836	-	86	-	12,367
Mining	-	-	-	87	-	978	-	-	99	33,576	36,882
Construction	1,746	3,336	1,219	1,031	-	61,900	-	-	217	-	78,384
Manufacturing 1	20,693	137	-	29	-	33	14,926	-	39	1,071	37,460
Manufacturing 2	6,743	183	-	-	-	-44	220	-	60	974	8,997
Manufacturing 3	7,246	178	-	-	-	-45	214	-	59	1,555	20,042
Manufacturing 4	1,662	356	-	333	-	52	5,021	-	111	444	9,149
Public utilities	882	339	297	920	-	75	2,726	-	957	-	7,853
Distribution	-	10,317	-	4,818	7,165	2,506	114,219	-	1,743	1,847	192,487
Transport, etc.	3,778	-	-	38	1,578	-	17,949	-	2,212	3,002	39,408
Ownership of dwelling	-	-	-	-	-	-	12,313	-	113	-	12,426
Services	5,434	2,378	252	-	12,583	-	41,241	-	1,963	3,036	72,460
Tourism	-	-	-	-	-	-	-	-	-	21,326	21,326
Saving and investment	-	-	-	-	-	-	15,632	38,098	9,561	13,122	66,413
Household expenditure	21,813	9,677	-	31,282	-	-	-	79,858	20,667	5,200	239,700
Profit appropriation	22,848	7,333	10,158	28,602	-	-	-	-	618	-	131,826
Government	13,522	589	500	1,094	-	-	5,062	11,302	-	1,152	41,002
Rest of world	74,239	4,585	-	3,256	-	-	1,832	12,568	2,285	-	117,899
Total	192,487	39,408	12,426	72,460	21,326	66,413	239,700	131,826	41,002	117,899	

Table 3e. iii

Jamaica: Inter-industry table, 1970

Sales by —	Purchases by —										
	Sugar	Export agri-culture	Domestic agri-culture	Livestock and fishing	Mining	Construc-tion	Manufac-turing 1	Manufac-turing 2	Manufac-turing 3	Manufac-turing 4	Public utilities
	J£1,000										
Sugar	-	-	-	-	-	-	1,719	-	-	-	-
Export agriculture	-	-	47	-	-	-	47	-	-	-	-
Domestic agriculture	254	-	-	1,514	243	137	3,253	336	1,287	166	-
Livestock and fishing	-	-	-	-	-	39	5,026	131	-	-	-
Mining	-	-	-	-	-	1,018	-	-	1,502	-	-
Construction	3,942	834	394	570	3,602	-	528	-	1,851	198	195
Manufacturing 1	-	-	-	282	-	-	-	191	-	-	-
Manufacturing 2	242	432	99	-	-	-	-	-	36	36	-
Manufacturing 3	152	188	-	-	-	12,397	566	137	-	171	-
Manufacturing 4	153	190	99	271	-	308	103	84	95	-	18
Public utilities	221	104	66	44	120	552	140	107	192	37	52
Distribution	1,326	1,894	3,075	1,799	2,230	32,810	11,293	902	4,290	999	2,117
Transport, etc.	2,655	1,240	563	336	3,736	2,435	898	122	378	581	213
Ownership of dwelling	-	-	-	-	-	-	-	-	-	-	-
Services	630	384	199	289	1,530	1,907	387	239	466	109	413
Tourism	-	-	-	-	-	-	-	-	-	-	-
Saving and investment	-	-	-	-	-	-	-	-	-	-	-
Household expenditure	12,929	5,840	3,218	4,088	6,454	32,471	6,048	2,406	8,255	3,383	1,843
Profit appropriation	4,276	4,425	9,116	4,837	28,636	8,499	5,273	1,176	5,075	1,923	2,930
Government	2,643	129	212	252	1,430	389	3,608	774	65	44	33
Rest of world	58	138	-	-	1,375	8,721	3,166	3,210	1,647	3,117	1,050
Total	29,481	15,798	17,088	14,282	49,356	101,683	42,055	9,815	25,139	10,764	8,864

Sales by —	Purchases by — (continued)										
	Distribution	Transport, etc.	Ownership of dwelling	Services	Tourism	Saving and investment	Households	Profit appropriation	Government	Rest of world	Total
	J£1,000										
Sugar	5,977	-	-	56	-	972	960	-	-	19,797	29,481
Export agriculture	-	-	-	-	-	-252	-	-	-	15,956	15,798
Domestic agriculture	5,035	-	-	429	-	51	4,097	-	227	59	17,088
Livestock and fishing	4,179	-	-	483	-	352	3,993	-	79	-	14,282
Mining	-	-	-	102	-	1,150	-	-	116	45,468	49,356
Construction	2,178	4,490	1,618	1,745	-	79,212	-	-	326	-	101,683
Manufacturing 1	21,005	153	-	33	-	38	17,848	-	44	2,461	42,055
Manufacturing 2	7,294	186	-	-	-	-47	224	-	60	1,251	9,815
Manufacturing 3	9,188	-	-	-	-	-272	1,711	-	141	760	25,139
Manufacturing 4	1,936	415	-	389	-	61	5,857	-	129	656	10,764
Public utilities	1,227	385	338	1,045	-	85	3,062	-	1,087	-	8,864
Distribution	-	12,179	-	6,320	9,952	3,079	142,664	-	2,950	2,268	242,147
Transport, etc.	4,960	-	-	54	2,192	-	21,662	-	2,765	3,623	48,413
Ownership of dwelling	-	-	-	-	-	-	14,677	-	145	-	14,822
Services	8,041	3,444	245	-	17,476	-	59,420	-	2,761	4,451	102,391
Tourism	-	-	-	-	-	-	-	-	-	29,620	29,620
Saving and investment	-	-	-	-	-	-	20,883	35,067	14,540	13,939	84,429
Household expenditure	26,799	12,040	-	43,900	-	-	-	103,534	25,981	7,500	306,779
Profit appropriation	38,070	8,850	12,029	40,221	-	-	-	-	753	-	166,089
Government	18,751	737	592	1,539	-	-	7,451	15,029	-	1,608	55,286
Rest of world	97,507	5,534	-	5,985	-	-	2,270	12,459	3,182	-	149,419
Total	242,147	48,413	14,822	102,391	29,620	84,429	306,779	166,089	55,286	149,417	

Table 3e.iv

Jamaica: Inter-industry table, 1975

Sales by —	Purchases by —										
	Sugar	Export agri-culture	Domestic agri-culture	Livestock and fishing	Mining	Construc-tion	Manufac-turing 1	Manufac-turing 2	Manufac-turing 3	Manufac-turing 4	Public utilities
	J£1,000										
Sugar	-	-	-	-	-	-	1,940	-	-	-	-
Export agriculture	-	-	51	-	-	-	51	-	-	-	-
Domestic agriculture	286	-	-	1,565	250	144	3,419	353	1,353	175	-
Livestock and fishing	-	-	-	-	-	44	5,944	150	-	-	-
Mining	-	-	-	-	-	1,222	-	-	1,802	-	-
Construction	4,444	913	414	652	4,322	-	617	-	2,045	226	218
Manufacturing 1	-	-	-	322	-	-	-	223	-	-	-
Manufacturing 2	273	474	104	-	-	-	-	-	38	38	-
Manufacturing 3	171	206	-	-	-	13,820	663	144	-	139	-
Manufacturing 4	172	206	104	310	-	352	120	87	105	-	14
Public utilities	249	114	69	50	-	698	204	112	252	42	-
Distribution	1,525	2,081	3,245	2,068	2,820	38,901	12,664	942	4,702	1,142	2,110
Transport, etc.	2,993	1,360	591	384	4,483	3,675	1,050	127	418	664	238
Ownership of dwelling	-	-	-	-	-	-	-	-	-	-	-
Services	711	422	209	330	1,716	2,855	453	249	515	124	462
Tourism	-	-	-	-	-	-	-	-	-	-	-
Saving and investment	-	-	-	-	-	-	-	-	-	-	-
Household expenditure	14,575	6,406	3,372	4,672	7,745	38,499	7,071	2,530	9,125	3,866	2,064
Profit appropriation	4,821	4,853	9,564	5,528	34,363	10,076	6,165	1,227	5,609	2,198	3,282
Government	2,979	141	223	288	1,836	718	4,218	81	71	50	36
Rest of world	65	151	-	-	1,651	10,340	3,509	3,561	1,821	3,590	1,176
Total	33,264	17,327	17,946	16,169	59,186	121,344	48,088	9,786	27,856	12,304	9,600

Sales by —	Purchases by — (continued)										
	Distribution	Transport, etc.	Ownership of dwelling	Services	Tourism	Saving and investment	Households	Profit appropriation	Government	Rest of world	Total
	J£1,000										
Sugar	6,121	-	-	63	-	1,083	1,100	-	-	22,957	33,264
Export agriculture	-	-	-	-	-	-277	-	-	-	17,502	17,327
Domestic agriculture	5,291	-	-	451	-	53	4,305	-	239	62	17,946
Livestock and fishing	4,564	-	-	552	-	402	4,423	-	90	-	16,169
Mining	-	-	-	122	-	1,380	-	-	139	54,521	59,186
Construction	3,064	6,415	2,248	1,983	-	93,530	-	-	253	-	121,344
Manufacturing 1	24,560	179	-	38	-	44	21,268	-	52	1,402	48,088
Manufacturing 2	7,398	195	-	-	-	-50	234	-	64	1,018	9,786
Manufacturing 3	9,078	-	-	-	-	-300	1,890	-	155	1,840	27,856
Manufacturing 4	2,212	474	-	444	-	70	6,694	-	148	792	12,304
Public utilities	1,122	431	378	1,170	-	95	3,396	-	1,218	-	9,600
Distribution	-	17,214	-	6,798	11,499	4,332	173,903	-	3,012	3,192	292,150
Transport, etc.	6,581	-	-	60	2,532	-	31,945	-	3,950	5,175	66,226
Ownership of dwelling	-	-	-	-	-	-	20,294	-	203	-	20,497
Services	8,218	3,715	340	-	20,195	-	65,255	-	3,178	4,728	113,675
Tourism	-	-	-	-	-	-	-	-	-	34,226	34,226
Saving and investment	-	-	-	-	-	-	26,107	43,392	17,797	13,066	100,362
Household expenditure	37,706	16,802	-	48,878	-	-	-	125,931	34,509	9,200	372,955
Profit appropriation	39,494	12,243	16,708	44,694	-	-	-	-	1,000	-	201,825
Government	25,679	1,053	823	1,772	-	-	9,365	18,770	-	2,131	77,234
Rest of world	111,062	7,505	-	6,650	-	-	2,772	13,732	4,227	-	171,812
Total	292,150	66,226	20,497	113,675	34,226	100,362	372,951	201,825	70,234	171,812	

Table 3f

Jamaica: Summary inter-industry table, 1958 and projections

Sales by—	Purchases by—					
	Production	Savings and investment	Household expenditure	Government	Rest of world	Total
1958	J£1,000					
Production	-	49,850	154,698	5,638	65,015	275,201
Savings and investment	19,334	-	10,603	8,019	13,794	51,750
Household expenditure	152,031	-	-	13,324	4,382	169,737
Government	24,674	-	3,116	-	823	28,613
Rest of world	79,162	1,900	1,320	1,632	-	84,014
Total	275,201	51,750	169,737	28,613	84,014	
1965						
Production	-	66,413	217,184	8,489	98,425	390,511
Savings and investment	28,098	-	15,632	9,561	13,122	66,413
Household expenditure	213,833	-	-	20,667	5,200	239,700
Government	34,788	-	5,062	-	1,152	41,002
Rest of world	113,792	-	1,822	2,285	-	117,899
Total	390,511	66,413	239,700	41,002	117,899	
1970						
Production	-	84,429	276,175	11,585	126,370	498,559
Savings and investment	35,067	-	20,883	14,540	13,939	84,429
Household expenditure	273,298	-	-	25,981	7,500	306,779
Government	46,229	-	7,451	-	1,608	55,288
Rest of world	143,965	-	2,270	3,182	-	149,417
Total	498,559	84,429	306,779	55,288	149,417	
1975						
Production	-	100,362	334,707	13,701	147,415	596,185
Savings and investment	43,392	-	26,107	17,797	13,066	100,362
Household expenditure	329,242	-	-	34,509	9,200	372,951
Government	58,738	-	9,365	-	2,131	70,234
Rest of world	164,813	-	2,772	4,227	-	171,812
Total	596,185	100,362	372,951	70,234	171,812	

Table 4a

Trinidad and Tobago: Income, expenditure and product, 1951 through 1959

Item	1951	1952	1953	1954	1955	1956	1957	1958	1959
At current prices	Million BWI dollars								
Consumption by persons	205.0	230.6	243.3	268.7	328.5	353.9	402.1	459.0	494.9
General government consumption expenditure	35.2	42.4	47.1	54.2	58.1	64.0	62.2	72.0	79.4
Gross domestic fixed capital formation	69.8	74.8	78.8	84.4	108.8	120.8	161.3	184.6	242.6
Increases in stocks	16.0	19.7	7.1	7.3	6.7	4.7	11.2	11.4	6.7
Exports of goods and services	241.5	257.7	286.1	292.7	318.9	370.6	445.0	479.9	506.5
Less imports of goods and services	-238.9	-266.3	-260.4	-276.7	-321.6	-332.7	-395.3	-454.1	-492.4
Total expenditure: gross domestic product at market prices	328.6	358.9	402.0	430.6	499.4	581.8	686.5	752.8	837.7
Less indirect taxes	-30.3	-31.8	-31.8	-35.3	-35.7	-40.0	-42.3	-53.0	-55.4
Plus subsidies	10.0	10.2	9.4	8.9	5.3	5.5	5.3	6.0	6.6
Gross domestic product at factor cost	308.3	337.3	379.6	404.2	469.0	547.3	649.5	705.8	788.9
Less factor income payments to rest of world	-24.3	-18.7	-29.9	-24.7	-31.5	-64.7	-104.3	-71.1	-107.0
Gross national product	284.0	318.6	349.7	379.5	437.5	482.6	545.2	634.7	681.9
Less depreciation	-24.1	-28.8	-37.5	-36.3	-42.2	-52.7	-46.9	-53.7	-70.2
National income	259.9	289.8	312.2	343.2	395.3	429.9	498.3	581.0	611.7

Source: Data and material developed during the study and the other available data.

Table 4b

Trinidad and Tobago: Income, expenditure and product, 1959 and projections

Item	1959		1965		1970		1975	
	Million BWI$	BWI$ per head	Million BWI$	BWI$ per head	Million BWI$	BWI$ per head	Million BWI$	BWI$ per head
At 1959 prices								
Consumption by persons	494.9	614.8	800.8	840.0	1,013.9	923.7	1,223.5	968.1
General government consumption expenditure	79.4	98.6	136.5	143.2	184.1	167.7	247.2	195.6
Gross domestic fixed capital formation	242.6	301.4	336.5	353.0	393.3	358.3	428.4	339.0
Increases in stocks	6.7	8.3	10.2	10.7	12.3	11.2	13.4	10.6
Exports of goods and services	506.5	629.2	790.1	828.8	898.1	818.2	985.5	779.8
Less imports of goods and services	-492.4	-611.7	-763.0	-800.4	-843.3	-8.3	-908.7	-719.0
Total expenditure: gross domestic product at market prices	837.7	1,040.6	1,311.1	1,375.3	1,658.4	1,465.4	1,989.3	1,574.1
Less indirect taxes	-55.4	-68.8	-89.3	-93.7	-107.8	-92.8	-136.8	-108.2
Plus subsidies	6.6	8.2	7.5	7.9	8.1	7.4	8.9	7.0
Gross domestic product at factor cost	788.9	980.0	1,229.3	1,289.5	1,558.7	1,420.1	1,861.4	1,472.9
Less factor income payments to rest of world	-107.0	-132.9	-141.3	-148.2	-192.0	-174.9	-216.9	-171.6
Gross national product	681.9	847.1	1,088.0	1,141.3	1,366.7	1,245.2	1,644.5	1,301.2
Less depreciation	-70.2	-87.2	-100.1	-105.0	-114.8	-104.6	-145.5	-115.1
National income	611.7	759.9	987.9	1,036.3	1,251.9	1,140.6	1,499.0	1,186.1
Population: Projection 1 Number	804,980		953,290		1,097,600		1,263,800	
Projection 2 Number			948,660		1,087,200		1,245,700	

Table 4c

Trinidad and Tobago: Gross domestic product at factor cost by industrial origin, 1959 and projections

Sector	1959		1965		1970		1975	
	Million BWI$	Percent	Million BWI$	Percent	Million BWI$	Percent	Million BWI$	Percent
Petroleum and asphalt	261.4	33.1	358.4	29.2	461.4	29.6	566.3	30.4
Sugar and rum	24.1	3.0	27.9	2.3	29.5	1.9	32.1	1.7
Public utilities	19.4	2.5	32.6	2.7	44.1	2.8	54.1	2.9
Building and construction	48.1	6.1	81.5	6.6	106.3	6.8	124.5	6.7
Agriculture	98.3	12.5	155.5	12.6	196.2	12.6	234.4	12.6
Transport and communications	25.8	3.3	31.1	2.5	37.0	2.4	43.1	2.3
Services	152.7	19.4	247.0	20.1	312.2	20.0	365.9	19.7
Government	65.9	8.3	115.7	9.4	141.7	9.1	170.2	9.1
Ownership of dwelling	13.4	1.7	25.1	2.0	32.5	2.1	38.3	2.1
Manufacturing	79.8	10.1	154.5	12.6	197.8	12.7	232.5	12.5
Total	788.9	100	1,229.3	100	1,558.7	100	1,861.4	100

Table 4d.i

Trinidad and Tobago: Inter-industry table, 1959

Sales by —	Purchases by —																
	Petroleum and asphalt	Sugar and rum	Agriculture	Building and construction	Public utilities	Ownership of dwelling	Manufacturing	Transport	Services	Sub-total	Rest of world	Households	Profit appropriation	Stocks	Capital formation	Government	Total
	Million BWI dollars																
Petroleum and asphalt	-	0.3	0.6	1.1	1.4	-	3.8	8.9	0.7	16.8	372.6	9.4	-	1.0	102.6	1.0	503.4
Sugar and rum	-	-	-	-	-	-	2.4	-	-	2.4	36.1	14.5	-	0.9	6.8	1.8	62.5
Agriculture	1.7	22.5	-	1.3	0.1	-	9.0	-	1.6	36.2	14.4	64.0	-	-0.5	7.9	2.2	124.2
Building and construction	22.3	0.5	2.3	-	1.1	6.7	4.0	0.7	6.4	44.0	-	19.4	-	-	4.6	15.8	83.8
Public utilities	2.3	0.5	0.2	0.3	-	1.1	2.5	0.5	4.6	12.0	3.5	5.5	-	-	10.4	5.7	37.1
Ownership of dwelling	-	-	-	-	-	-	-	-	1.6	1.6	-	26.3	-	-	-	-	27.9
Manufacturing	6.5	2.6	3.8	10.8	0.2	-	-	5.8	16.8	46.5	14.3	95.6	-	3.1	12.5	8.2	180.2
Transport and communications	7.2	0.8	1.2	2.9	1.0	-	2.1	-	8.6	23.8	16.2	22.6	-	-	10.5	0.8	73.9
Services	19.9	4.2	2.9	4.3	2.2	3.9	15.5	9.9	-	62.8	50.7	202.0	-	2.2	36.5	9.3	363.5
Sub-total	59.9	31.4	11.0	20.7	6.0	11.7	39.3	25.8	40.3		507.8	459.3	-	6.7	191.8	44.8	
Rest of world	179.1	4.0	12.7	13.9	7.8	-	57.4	17.5	166.6	459.0	-	37.8	120.3	-	-	15.0	632.1
Government	19.5	3.0	2.2	1.1	2.2	2.8	3.7	4.8	9.2	48.5	4.4	40.8	44.0	-	31.4	-	169.1
Households	54.5	9.0	34.9	18.1	15.6	-	35.2	13.1	60.4	240.8	18.5	-	204.1	-	19.4	74.0	556.8
Profit appropriation	190.4	15.1	63.4	30.0	-	13.4	44.6	12.7	87.0	456.6	-	-	-	-	-	-	456.6
Savings and investment	-	-	-	-	5.5	-	-	-	-	5.5	101.4	18.9	88.2	-	-	35.3	249.3
Total	503.4	62.5	124.2	83.8	37.1	27.9	180.2	73.9	363.5		632.1	556.8	456.6	6.7	242.6	169.1	3,520.4

Source: Data and material developed during the study and other available data.

Table 4d.ii

Trinidad and Tobago: Inter-industry table, 1965

Sales by —	Purchases by —																
	Petroleum and asphalt	Sugar and rum	Agriculture	Building and construction	Public utilities	Ownership of dwelling	Manufacturing	Transport	Services	Sub-total	Rest of world	Households	Profit appropriation	Stocks	Capital formation	Government	Total
	Million BWI dollars																
Petroleum and asphalt	-	0.5	0.9	1.5	2.5	-	7.7	18.2	1.7	33.0	576.7	14.3	-	0.5	90.5	1.4	716.4
Sugar and rum	-	-	-	-	-	-	3.0	-	-	3.0	45.4	18.1	-	0.9	5.6	2.3	75.3
Agriculture	2.5	28.5	-	3.3	0.4	-	26.8	-	2.9	64.4	19.6	91.0	-	0.2	10.1	3.6	188.9
Building and construction	20.1	0.5	3.5	-	1.0	11.9	7.3	1.2	11.8	57.3	-	37.5	-	-	7.0	50.9	152.7
Public utilities	4.1	0.7	0.2	0.7	-	1.8	5.2	1.1	9.7	23.5	5.4	11.1	-	-	8.6	6.0	54.6
Ownership of dwelling	-	-	-	-	-	-	-	-	3.0	3.0	-	48.2	-	-	-	-	51.2
Manufacturing	7.7	3.0	6.3	21.0	0.3	-	-	6.9	27.8	73.0	43.3	189.9	-	6.4	30.1	17.8	360.5
Transport and communications	8.5	0.9	2.1	5.6	1.2	-	3.0	-	10.4	31.7	20.8	28.5	-	-	12.5	1.2	94.7
Services	24.3	4.7	4.8	8.4	2.4	7.1	35.9	10.2	-	97.8	81.3	323.4	-	2.2	45.4	25.8	575.9
Sub-total	67.2	38.8	17.8	40.5	7.8	20.8	88.9	37.6	67.3		792.5	762.0	-	10.2	209.8	109.0	
Rest of world	288.0	4.8	13.2	27.7	7.8	-	110.3	20.4	244.9	717.1	-	50.6	166.3	-	-	25.5	959.5
Government	26.5	3.8	2.4	3.0	3.7	5.3	6.8	5.6	16.7	73.8	6.5	74.8	69.7	-	89.2	-	314.0
Households	73.8	10.4	39.8	40.7	21.7	-	71.2	15.4	110.6	383.6	37.2	-	330.9	-	37.5	126.9	916.1
Profit appropriation	260.9	17.5	115.7	40.8	-	25.1	83.3	15.7	136.4	695.4	-	-	-	-	-	-	695.4
Savings and investment	-	-	-	-	13.6	-	-	-	-	13.6	123.3	28.7	128.5	-	-	52.6	346.7
Total	716.4	75.3	188.9	152.7	54.6	51.2	360.5	94.7	575.9		959.5	916.1	695.4	10.2	336.5	314.0	5,501.9

Table 4d. iii

Trinidad and Tobago: Inter-industry table, 1970

Sales by --	Purchases by --																
	Petroleum and asphalt	Sugar and rum	Agriculture	Building and construction	Public utilities	Ownership of dwelling	Manufacturing	Transport	Services	Sub-total	Rest of world	Households	Profit appropriation	Stocks	Capital formation	Government	Total
	Million BWI dollars																
Petroleum and asphalt	-	0.6	1.0	2.1	4.1	-	13.5	31.9	2.9	56.1	639.0	18.6	-	0.8	94.1	1.7	810.3
Sugar and rum	-	-	-	-	-	-	3.6	-	-	3.6	46.4	21.3	-	0.7	5.3	2.4	79.7
Agriculture	3.2	29.7	-	4.9	0.5	-	40.6	-	3.5	82.4	24.6	113.6	-	0.3	12.2	4.5	237.6
Building and construction	20.4	0.7	4.3	-	1.2	17.8	11.0	1.8	17.7	74.9	-	51.2	-	-	11.2	68.1	205.4
Public utilities	5.0	1.0	0.2	1.1	-	2.4	7.9	1.5	11.3	30.4	7.1	18.6	-	-	9.7	6.8	72.6
Ownership of dwelling	-	-	-	-	-	-	-	-	4.2	4.2	-	67.3	-	-	-	-	71.5
Manufacturing	8.6	3.1	9.4	29.1	0.8	-	-	8.2	39.7	98.9	59.1	240.6	-	7.5	35.1	25.1	466.3
Transport and communications	9.4	0.9	3.1	7.8	1.5	-	4.1	-	12.0	38.8	25.1	35.9	-	-	18.8	1.8	120.4
Services	25.6	4.8	6.6	11.6	3.2	11.4	41.0	10.6	-	114.8	99.5	394.5	-	3.0	50.0	36.9	698.7
Sub-total	72.2	40.8	24.6	56.6	11.3	31.6	121.7	54.0	91.3		900.8	961.6	-	12.3	236.4	147.3	
Rest of world	273.5	5.1	13.9	38.3	8.9	-	138.8	22.5	275.6	776.4	-	64.1	226.0	-	-	36.1	1,102.6
Government	33.7	4.3	2.9	4.2	3.7	7.4	8.0	6.9	19.6	90.7	9.3	83.2	96.7	-	105.7	-	385.6
Households	86.8	10.7	43.9	56.4	28.9	-	92.8	18.2	141.0	478.7	39.5	-	428.5	-	51.2	152.5	1,150.4
Profit appropriation	344.3	18.8	152.3	49.9	-	32.5	105.0	18.8	171.2	892.8	-	-	-	-	-	-	892.8
Savings and investment	-	-	-	-	19.8	-	-	-	-	19.8	153.0	41.5	141.6	-	-	49.7	405.6
Total	810.3	79.7	237.6	205.4	72.6	71.5	466.3	120.4	698.7		1,102.6	1,150.4	892.8	12.3	393.3	385.6	6,699.5

Table 4d.iv

Trinidad and Tobago: Inter-industry table, 1975

Sales by —	Purchases by —																
	Petroleum and asphalt	Sugar and rum	Agriculture	Building and construction	Public utilities	Ownership of dwelling	Manufacturing	Transport	Services	Sub-total	Rest of world	Households	Profit appropriation	Stocks	Capital formation	Government	Total
	Million BWI dollars																
Petroleum and asphalt	-	0.7	1.2	2.8	6.5	-	20.2	47.6	4.3	83.3	675.7	24.2	-	0.6	99.2	1.9	884.9
Sugar and rum	-	-	-	-	-	-	4.5	-	-	4.5	44.1	25.8	-	0.5	5.5	2.4	82.8
Agriculture	3.9	29.8	-	6.1	0.6	-	52.1	-	4.4	96.9	30.4	136.1	-	0.5	14.1	5.7	283.7
Building and construction	20.9	0.9	5.1	-	1.4	23.9	16.8	3.5	23.9	96.4	-	75.7	-	-	11.9	64.8	248.8
Public utilities	5.6	0.8	0.2	1.6	-	3.1	10.5	1.8	14.7	38.3	8.9	27.2	-	-	10.8	8.0	93.2
Ownership of dwelling	-	-	-	-	-	-	-	-	5.7	5.7	-	88.3	-	-	-	-	94.0
Manufacturing	9.9	2.9	12.2	34.3	1.4	-	-	9.1	49.8	119.6	72.1	285.8	-	7.7	40.4	30.3	555.9
Transport and communications	10.6	0.8	4.2	9.9	2.3	-	5.3	-	13.5	46.6	31.2	44.7	-	-	21.2	2.8	146.5
Services	26.6	4.7	8.1	14.9	4.6	18.9	50.4	10.9	-	139.1	126.1	438.9	-	4.1	53.2	51.6	813.0
Sub-total	77.5	40.6	31.0	69.6	16.8	45.9	159.8	72.9	116.3		988.5	1,146.7	-	13.4	256.3	167.5	
Rest of world	247.3	5.3	14.7	49.1	10.6	-	150.8	23.0	304.2	805.0	-	80.0	261.9	-	-	50.5	1,197.4
Government	42.5	4.8	3.6	5.6	3.9	9.8	12.8	7.5	26.6	117.1	12.9	103.5	123.4	-	96.4	-	453.3
Households	101.3	11.0	47.8	70.2	38.1	-	114.2	20.9	171.4	574.9	45.2	-	496.9	-	75.7	185.5	1,378.2
Profit appropriation	416.3	21.1	186.6	54.3	-	38.3	118.3	22.2	194.5	-	-	-	-	-	-	-	1,051.6
Savings and investment	-	-	-	-	23.8	-	-	-	-	23.8	150.8	48.0	169.4	-	-	49.8	441.8
Total	884.9	82.8	283.7	248.8	93.2	94.0	555.9	146.5	813.0		1,197.4	1,378.2	1,051.6	13.4	428.4	453.3	7,725.1

Table 5a

Leeward Islands, Windward Islands, and Barbados:
Income, expenditure and product, 1958 and projections

Item	1958		1965		1970		1975	
	BWI$ 1,000	BWI$ per capita	BWI$ 1,000	BWI$ per capita	BWI$ 1,000	BWI$ per capita	BWI$ 1,000	BWI$ per capita
At 1958 prices								
Consumption by persons	197,189	303	255,904	355	310,482	401	368,470	443
General government consumption expenditure	34,385	53	45,044	63	55,500	72	67,872	82
Gross domestic fixed capital formation	46,904	72	58,160	81	71,246	92	87,635	105
Increases in stocks	4,115	6	4,500	6	4,750	6	6,200	7
Exports of goods and services	106,537	164	139,563	194	168,965	219	210,293	253
Less imports of goods and services	-145,091	-221	-180,603	-251	-218,893	-283	-254,904	-306
Total expenditure: gross domestic product at market price	244,039	376	322,568	448	392,050	507	485,566	584
Less indirect taxes	-22,875	-36	-33,268	-46	-37,250	-48	-49,216	-59
Plus subsidies	1,200	2	1,500	2	1,700	2	1,850	2
Gross domestic product at factor cost	222,364	342	290,800	404	356,500	460	438,200	527
Less factor income payments to rest of world	+1,232	+2	+1,450	+2	+1,600	+2	+1,800	+2
Gross national product	224,596	344	292,250	406	358,100	462	440,000	529
Less depreciation	-9,785	-15	-14,540	-20	-17,825	-22	-21,910	-26
National income	214,811	329	277,710	386	340,275	440	418,090	503
Population Number	650,710		719,937		774,031		832,237	

Table 5b

Leeward Islands, Barbados, and Windward Islands: Gross domestic product at factor cost, by industrial origin, 1955, 1960, and projections

(BWI$1,000)

Sector	1955	1960	1965	1970	1975	1955	1960	1965	1970	1975
	Antigua					Grenada				
Export agriculture	2,919	3,900	5,730	5,930	5,960	4,362	5,800	8,500	9,200	10,000
Other agriculture	1,724	2,480	2,500	2,650	2,900	4,200	4,500	4,800	5,000	5,600
Manufacturing and mining	45	195	250	850	1,500	500	600	900	1,200	1,400
Construction	971	2,400	4,300	4,300	4,700	2,659	2,100	2,400	3,000	3,700
Distribution, commerce and transport	1,635	3,520	4,400	5,750	5,150	3,600	3,800	4,100	5,500	7,300
Services	1,540	3,120	4,410	5,270	6,000	1,506	2,100	3,000	4,200	6,200
Rent of dwelling	1,050	1,400	1,650	1,950	2,120	2,004	2,100	2,400	2,500	2,650
Government	2,491	3,950	5,760	7,300	8,200	2,672	4,900	5,400	6,580	8,250
Total	12,375	20,965	29,000	34,000	36,530	21,503	25,900	31,600	37,180	45,100
	St. Kitts-Nevis-Anguilla					St. Vincent				
Export agriculture	6,585	8,400	9,600	10,500	11,340	2,900	5,000	5,600	6,200	7,300
Other agriculture	1,626	2,100	2,250	2,750	3,000	3,800	4,700	5,000	5,120	5,200
Manufacturing and mining	115	200	325	450	500	600	800	900	1,000	1,000
Construction	786	1,160	3,000	3,250	4,000	800	1,200	2,200	2,400	3,000
Distribution, commerce and transport	2,058	2,370	3,250	4,100	4,500	3,200	4,200	4,800	5,400	7,000
Services	753	1,505	2,250	2,750	3,400	800	1,200	2,000	3,450	4,890
Rent of dwelling	921	1,377	1,500	1,800	2,000	950	1,400	5,000	5,800	7,000
Government	1,722	3,590	5,000	6,900	7,500	2,150	4,100	5,000	5,800	7,000
Total	14,566	20,702	27,175	32,500	36,240	15,200	22,600	27,300	31,370	37,590
	Montserrat					St. Lucia				
Export agriculture	223	274	290	310	340	3,800	6,400	9,000	10,200	11,000
Other agriculture	1,058	1,500	1,700	1,725	1,750	3,900	4,300	5,000	5,500	6,000
Manufacturing and mining	24	30	45	48	50	900	1,300	2,000	2,300	2,500
Construction	188	240	225	300	310	1,200	1,900	2,400	3,000	3,800
Distribution, commerce and transport	376	410	470	490	510	2,200	3,000	3,940	4,525	6,800
Services	54	75	110	120	135	1,100	1,900	2,500	4,000	5,500
Rent of dwelling	123	123	130	142	145	1,200	1,800	2,000	2,400	2,700
Government	520	760	760	780	800	2,200	4,600	5,800	6,500	7,300
Total	2,566	3,412	3,780	3,915	4,040	17,000	25,200	32,640	38,423	45,600
	Barbados					Dominica				
Export agriculture	26,000	28,000	38,080	42,000	45,360	2,800	5,300	7,800	8,500	9,500
Other agriculture	4,800	5,200	5,200	6,000	8,000	3,050	4,200	4,100	4,300	4,500
Manufacturing and mining	7,500	9,121	9,400	1,500	22,000	250	300	400	500	600
Construction	5,800	7,200	8,200	17,530	18,000	9,000	1,800	2,200	2,300	2,500
Distribution, commerce and transport	2,500	28,200	30,100	42,380	58,500	18,000	3,100	3,900	4,200	5,000
Services	6,500	8,200	9,000	12,000	20,000	600	800	1,000	1,500	1,800
Rent of dwelling	2,800	3,000	3,250	3,600	4,500	800	1,000	1,200	1,300	1,400
Government	7,700	11,600	13,250	16,000	26,710	1,800	3,400	3,800	4,200	4,750
Total	86,100	100,521	116,480	148,510	203,070	12,000	19,900	24,400	26,800	30,050

Table 6a

British Guiana: Income, expenditure and product, 1948 through 1960

Item	1948	1949	1950	1951	1952	1953	1954	1955	1956	1957	1958	1959	1960
At current prices	BWI$ 1,000												
Consumption by persons	87,270	96,370	108,120	120,190	129,987	136,087	143,692	146,222	158,493	167,395	172,119	178,136	191,770
General government consumption expenditures	13,400	14,800	16,200	17,600	21,340	21,807	22,218	25,958	28,376	32,197	32,762	33,461	35,836
Gross domestic fixed capital formation	21,900	25,200	27,400	30,100	25,856	26,871	36,116	45,458	48,000	61,490	60,865	59,066	77,895
Increases in stocks	3,900	-1,600	-1,500	4,600	650	-2,420	2,259	525	92	1,159	7,665	-2,174	7,465
Exports of goods and services	40,900	50,500	55,600	64,100	83,965	85,522	87,909	93,146	98,202	114,550	104,040	110,807	134,818
Less imports of goods and services	-51,700	-56,400	-61,500	-74,400	-83,506	-72,834	-80,877	-95,447	-100,915	-120,885	-119,190	-113,656	-149,777
Total expenditure: gross domestic product at market prices	115,670	128,870	144,320	162,190	178,292	195,033	211,317	215,862	232,248	255,906	258,261	265,690	298,007
Less indirect taxes	-11,489	-12,080	-12,900	-15,220	-21,505	-21,549	-22,769	-27,090	-27,511	-26,518	-26,671	-28,396	-30,554
Plus subsidies	3,750	2,170	3,080	2,660	1,859	2,323	3,104	2,768	2,157	2,173	2,512	2,133	2,399
Gross domestic product at factor cost	107,940	118,960	134,500	149,630	158,646	175,807	191,652	191,540	206,894	231,561	234,102	239,427	269,852
Less factor income payments to rest of world	-2,200	-4,900	-6,900	-6,500	-7,527	-10,254	-9,874	-9,367	-11,101	-14,620	-11,201	-11,420	-13,821
Gross national product	105,740	114,060	127,600	143,130	151,119	165,553	181,778	182,173	195,793	216,941	222,901	228,007	256,031
Less depreciation	-6,100	-6,600	-7,500	-8,200	-7,962	-7,641	-7,807	-8,924	-8,432	-15,441	-15,379	-15,597	-17,734
National income	99,640	107,460	120,100	134,930	143,157	157,912	173,971	173,249	187,361	201,500	207,522	212,410	238,297

Sources: Percival and D'Andrade — The National Income Accounts of British Guiana 1948-51.
O'Loughlin — The Economy of British Guiana 1952-56.
Kundu — Inter-Industry Table for the Economy of British Guiana 1959 and National Accounts 1957-60

Note: Export taxes or duties have been treated by Percival and D'Andrade (page 83) as direct taxes and by O'Loughlin (page 62) as government income from property. U. N. Standard System (page 36) considers export duties as part of indirect taxes. Hence for 1948-56 the national income and GDP at factor cost figures, as given by Percival and D'Andrade and O'Loughlin, have been decreased by the amounts of export duties.

Table 6b

British Guiana: Income, expenditure and product, 1960 and projections

Item	1960		1965		1970		1975	
	BWI$ 1,000	BWI$ per capita	BWI$ 1,000	BWI$ per capita	BWI$ 1,000	BWI$ per capita	BWI$ 1,000	BWI$ per capita
At 1960 prices								
Consumption by persons	191,770	343	227,591	352	263,599	354	304,925	355
General government consumption expenditure	35,836	64	43,502	68	50,153	68	57,476	67
Gross domestic fixed capital formation	77,895	140	83,398	129	87,262	117	94,172	110
Increases in stocks	7,465	13	2,121	3	2,444	3	2,807	3
Exports of goods and services	134,818	241	174,630	270	191,236	257	210,363	245
Less imports of goods and services	-149,777	-268	-171,298	-265	-182,286	-245	-199,232	-232
Total expenditure: gross domestic product at market prices	298,007	533	359,944	557	412,408	554	470,511	548
Less indirect taxes	-30,554	-54	-39,356	-61	-42,674	-57	-46,163	-54
Plus subsidies	2,399	4	1,903	3	1,831	2	2,324	3
Gross domestic product at factor cost	269,852	483	322,491	499	371,565	499	426,672	497
Less Factor income payments to rest of world	-13,821	-25	-16,188	-25	-18,848	-25	-22,185	-26
Gross national product	256,031	458	306,303	474	352,717	474	404,487	471
Less depreciation	-17,734	-32	-21,220	-33	-24,319	-33	-27,980	-33
National income	238,297	426	285,083	441	328,398	441	376,507	439
Population (including Amerindians) Number	558,769		646,530		744,400		858,340	

Table 6c

British Guiana: Inter-industry table, 1959

Sales by —	Purchases by —										
	Agriculture	Livestock, forestry and fishing	Mining	Food processing	Chemicals	Engineering	Other manufacturing	Fuel and power	Distribution	Transport and communications	Banking and insurance
	BWI$100										
Agriculture	50,933	4,200	-	587,041	-	-	-	-	-	2,336	-
Livestock, forestry and fishing	96	25,494	-	54,347	-	16	66,284	4,858	-	182	22
Mining	-	-	2,377	-	-	16	2,031	-	-	-	-
Food processing	9,865	5,699	159	45,516	9,185	-	1,467	7	63	85	-
Chemicals	32,437	64	12,570	10,902	5,874	32	323	2	12	2	-
Engineering	35,094	11,283	43,031	16,487	2,853	8,970	5,870	2,774	4,996	30,341	144
Other manufacturing	21,424	19,395	28,428	24,543	989	296	21,378	198	12,095	10,514	1,793
Fuel and power	27,254	10,466	4,890	16,736	549	754	3,957	7,218	7,179	29,293	254
Distribution	27,804	15,868	5,762	62,952	24,451	148,162	70,587	25,310	9,773	1,891	3,370
Transport and communications	13,032	18,847	7,715	32,166	698	40	4,049	36	16,878	10,703	931
Banking and insurance	9,886	1,177	147	5,583	369	-88	2,551	235	13,799	7,742	18,305
Professions, and personal services	580	610	10,118	19,476	161	39	315	257	12,419	1,144	1,998
Building and construction	32,012	234	43	1,738	18	-	848	-	11,793	3,760	613
Rent of dwelling	-	-	-	-	-	-	-	-	-	-	-
Sub-total	260,417	113,337	115,240	877,487	45,147	158,237	179,660	40,895	89,007	97,993	27,430
Government	42,863	14,498	43,482	102,224	17,945	50,551	46,222	19,305	36,351	-17,730	7,397
Household	452,805	205,194	136,783	163,904	9,408	13,624	54,036	15,747	297,342	175,515	65,062
Foreign countries (export)	34,805	17,724	2,352	195,650	100,578	377,289	290,134	91,482	9,303	150	-
Sub-total	530,473	237,416	182,617	461,778	127,931	441,464	390,392	126,534	342,996	157,935	72,459
Grand Total	790,890	350,753	297,857	1,339,265	173,078	599,701	570,052	167,429	432,003	255,928	99,889

Sales by —	Purchases by — (continued)									
	Professions and personal services	Building and construction	Rent of dwelling	Sub-total	Government	Household	Foreign countries (export)	Gross capital formation	Sub-total	Grand total
	BWI$ 100 dollars									
Agriculture	2,413	-	-	646,923	950	101,940	14,268	26,809	143,967	790,890
Livestock, forestry and fishing	1,698	-	-	152,997	-	142,821	50,281	4,654	197,756	350,753
Mining	13	31,187	-	35,624	1,460	-	248,387	12,386	262,233	297,857
Food processing	13,127	-	-	85,173	11,768	632,937	666,340	-56,953	1,254,092	1,339,265
Chemicals	2,099	-	-	64,317	5,788	92,869	12,018	-1,914	108,761	173,078
Engineering	2,254	284,718	169	448,984	13,491	126,377	12,323	-1,474	150,717	599,701
Other manufacturing	33,005	92,339	258	266,655	48,792	216,556	45,427	-7,378	303,397	570,052
Fuel and power	4,225	660	22	113,457	3,645	44,370	3,826	2,131	53,972	167,429
Distribution	17,429	62	653	414,074	310	-	17,619	-	17,929	432,003
Transport and communications	1,993	57,077	12	164,177	17,703	64,069	9,979	-	91,751	255,928
Banking and insurance	-415	3,396	8,515	71,202	22,078	10,156	-3,547	-	28,687	99,889
Professions and personal services	3,730	220	34	51,101	540	190,265	-	-	190,805	241,906
Building and construction	11,382	57	10,870	73,368	41,700	-	-	590,658	632,358	705,726
Rent of dwelling	-	-	-	-	-	72,596	-	-	72,596	72,596
Sub-total	92,953	469,716	20,533	2,588,052	168,225	1,694,956	1,076,921	568,919	3,509,021	6,097,073
Government	10,314	2,115	18,834	394,371	3,858	49,830	-	-	53,688	448,059
Household	138,639	233,895	33,229	1,995,183	257,139	50,168	42,583	-	349,890	2,345,073
Foreign countries (export)	-	-	-	1,119,467	760	153,172	-	-	153,932	1,273,399
Sub-total	148,953	236,010	52,063	3,509,021	261,757	253,170	42,583		557,510	4,066,531
Grand total	241,906	705,726	72,596	6,097,073	429,982	1,948,126	1,119,504	568,919	4,066,531	10,163,604

Source: Data and material developed during the study and other available data.

Table 6d

British Guiana: Inverted transaction matrix, 1959

Sector	Sectors 1/													
	1	2	3	4	5	6	7	8	9	10	11	12	13	14
	Inverted coefficients													
1. Agriculture	1.007800	.022139	.003402	.459450	.025621	.000461	.004282	.001053	.001803	.010394	.001213	.036833	.001756	.000457
2. Livestock, forestry, and fishing	.007107	1.010400	.014262	.049524	.004551	.001648	.123420	.031832	.006044	.010733	.004311	.029131	.018374	.003779
3. Mining	.002212	.000490	1.000600	.001321	.000341	.000413	.004052	.000275	.001530	.001014	.000577	.002997	.045006	.006837
4. Food processing	.016363	.018583	.005577	1.009800	.055897	.000553	.005343	.001061	.002161	.001301	.001647	.057440	.001301	.000455
5. Chemicals	.044479	.001440	.043171	.028921	1.001700	.000181	.001084	.000158	.000494	.000631	.000343	.011185	.002179	.000381
6. Engineering	.073532	.048970	.156270	.055437	.025816	1.008100	.023468	.024132	.031964	.136670	.009495	.041518	.427850	.067943
7. Other manufacture	.040863	.068032	.107550	.046969	.015244	.010826	1.015000	.010291	.041024	.050759	.029544	.154940	.146250	.002945
8. Fuel and power	.042747	.043238	.024367	.039397	.009766	.007340	.016831	1.005300	.024072	.122960	.006708	.026835	.001717	.003989
9. Distribution	.077240	.080362	.086994	.101650	.161340	.256580	.146840	.168760	1.021800	.071101	.051078	.115780	.132860	.003631
10. Transport and communications	.026217	.063726	.032412	.043083	.013537	.011332	.012154	.009521	.044812	1.006100	.015101	.022464	.090292	.015976
11. Banking and insurance	.017471	.009063	.005053	.015780	.008611	.008693	.010773	.007483	.035181	.034744	1.002300	.004625	.012785	.119870
12. Professions and personal services	.004102	.005206	.037366	.019407	.006894	.007926	.005752	.006899	.031296	.007960	.026206	1.004800	.006694	.004870
13. Building and construction	.046582	.005353	.005232	.025890	.006425	.007823	.006639	.005331	.031134	.018591	.010546	.053565	1.005800	.152200
14. Rent of dwelling	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	1.000000

1/ Numbers correspond with the numbered sector designations in the left Sector column.

Source: Data and material developed during the study and other available data.

Table 7a

Jamaica: Elasticities of demand, consumption, calorie content and total demand, for specified foods, 1958 and projections

	Elasticity	Consumption, pounds per year per capita				Calories, per day per capita				Total demand, 1,000 pounds			
	1958	1958	1965	1970	1975	1958	1965	1970	1975	1958	1965	1970	1975
Cereals:													
Rice	.45	42.262	46.738	49.911	52.067	187.400	207.260	221.319	230.877	66,060	81,536	94,166	106,237
Flour	.50	110.671	123.722	132.916	139.113	482.000	538.876	578.882	605.874	172,990	215,838	250,770	283,846
Wheat	.25	1.080	1.146	1.189	1.219	4.540	4.810	4.999	5.126	1,688	1,999	2,243	2,487
Corn and meal	.30	17.703	18.960	19.845	20.429	65.960	70.640	73.941	76.118	27,672	33,077	37,441	41,683
Others	.25	5.820	6.173	6.408	6.571	26.200	27.750	28.846	29.580	9,097	10,769	12,090	13,407
Sugar and preparations	.40	83.466	91.337	96.904	100.660	362.900	397.020	421.327	437.657	130,466	159,342	182,827	205,386
Roots and starchy vegetables:													
Irish potato	.70	12.676	14.771	16.251	17.239	11.000	12.810	14.102	14.960	19,814	25,769	30,660	35,174
Sweet potato	.70	14.749	17.174	18.908	20.059	17.800	20.740	22.820	24.208	23,054	29,961	35,673	40,928
Others	-.10	223.480	218.116	214.541	212.083	215.090	209.928	206.486	204.120	349,322	380,514	404,771	432,734
Vegetables and pulses:													
Tomatoes, fresh and processed	.55	37.258	42.064	45.529	47.802	8.800	9.940	10.754	11.290	58,238	73,383	85,899	97,535
Other vegetables, fresh	.55	23.986	27.080	29.311	30.774	6.636	7.492	8.109	8.514	37,493	47,242	55,301	62,791
Other vegetables, processed	.70	1.499	1.742	1.922	2.039	.410	.480	.526	.558	2,343	3,039	3,626	4,160
Pulses	.55	7.826	8.836	9.563	10.041	32.130	36.275	39.263	41.223	12,233	15,415	18,042	20,488
Fruit:													
Apples, pears and grapes	.66	2.227	2.579	2.822	2.998	.520	.600	.660	.700	3,481	4,499	5,234	6,117
Banana	.65	109.158	125.860	137.759	145.727	90.889	104.795	114.702	121.337	170,625	219,569	258,908	297,341
Citrus — orange and grapefruit	.65	33.047	38.096	41.705	44.118	11.820	13.630	14.917	15.780	51,656	66,460	78,684	90,018
Citrus — lime and tangerine	.66	10.185	11.773	12.897	13.646	2.770	3.200	3.510	3.710	15,920	20,539	24,333	27,843
Coconut	.65	31.151	35.913	39.312	41.587	54.960	63.370	69.359	73.371	48,693	52,652	74,169	84,854
All others	.66	103.043	119.005	130.450	138.080	58.720	67.821	74.336	78.687	161,067	207,610	246,118	281,738
Processed	.70	2.491	2.910	3.193	3.388	8.480	9.880	10.871	11.533	3,894	5,077	6,024	6,913
Meat:													
Beef	1.10	16.380	20.613	23.636	25.651	31.760	39.990	45.830	49.736	25,604	35,960	44,594	52,338
Goat	.50	3.351	3.748	4.025	4.212	5.310	5.940	6.377	6.675	5,238	6,539	7,594	8,594
Mutton	1.10	.661	.838	.954	1.035	1.950	2.460	2.814	3.054	1,033	1,462	1,800	2,112
Pork	1.10	4.255	5.357	6.140	6.663	20.900	26.310	30.159	32.729	6,651	9,346	11,584	13,595
Beef and pork, salted	.10	2.513	2.557	2.614	2.641	17.020	17.420	17.701	17.888	3,928	4,461	4,932	5,389
Processed	1.00	.617	.772	.866	.935	2.990	3.690	4.195	4.530	964	1,347	1,634	1,908
Poultry	1.50	2.447	3.311	3.925	4.336	3.920	5.304	6.288	6.946	3,825	5,777	7,405	8,847
Fish:													
Fresh	.55	14.198	16.027	17.350	18.216	10.940	12.350	13.369	14.036	22,193	27,960	32,734	37,163
Tinned	1.50	3.439	4.652	5.516	6.094	13.440	18.180	21.558	23.816	5,376	8,116	10,407	12,434
Salted	-.05	13.580	13.426	13.308	13.227	30.000	29.610	29.400	29.220	21,227	23,422	25,108	26,988
Others	.55	.944	1.056	1.154	1.211	1.752	1.975	2.141	2.248	1,476	1,842	2,177	2,471
Milk:													
Fresh	.90	29.872	36.200	40.716	43.703	22.270	26.990	30.354	32.581	46,693	63,153	76,818	89,172
Evaporated, etc.	.45	20.194	22.333	23.849	24.879	79.760	88.210	94.197	116.051	31,565	38,961	44,996	50,763
Cheese	.85	1.367	1.631	1.836	1.964	5.830	7.000	7.830	8.378	2,137	2,845	3,464	4,007
Other products	.85	1.367	1.631	1.836	1.964	3.910	4.680	5.251	5.619	2,137	2,845	3,464	4,007
Eggs	1.40	9.325	12.390	14.584	16.048	16.770	22.290	26.228	28.861	14,576	21,615	27,515	32,744
Oils and fats:													
Butter	1.00	2.557	3.153	3.587	3.874	22.700	28.030	31.848	34.391	3,997	5,501	6,768	7,905
Others	.60	15.719	17.945	19.523	20.576	170.320	194.340	211.537	222.949	24,570	31,306	36,834	41,983
Alcoholic drinks:													
Beer	.80	21.098	25.066	27.892	29.790	11.670	13.860	15.428	16.478	32,978	43,729	52,623	60,783
Wine	1.00	.507	.617	.711	.768	.320	.400	.449	.485	792	1,076	1,341	1,567
Others	.10	9.965	10.207	10.364	10.473	30.830	31.570	32.063	32.402	15,576	17,807	19,554	21,369

Table 7b

Trinidad and Tobago: Elasticities of demand, consumption, calorie content and total demand, for specified foods, 1958 and projections

Commodity	Elasticity	Consumption, pounds per year per capita				Calories, per day per capita				Total demand, 1,000 pounds			
	1958	1958	1965	1970	1975	1958	1965	1970	1975	1958	1965	1970	1975
Cereals:													
Rice	.10	103.005	106.816	107.743	108.259	456.746	473.646	477.756	480.040	81,230	101,827	118,259	138,816
Flour	.45	63.096	73.507	76.220	77.545	275.259	320.677	332.513	338.293	49,758	70,073	83,659	58,001
Corn and meal	.30	20.282	21.032	23.102	23.386	74.941	77.714	85.358	86.407	15,994	20,050	25,357	29,555
Others	.45	99.094	115.445	119.706	121.787	448.271	522.236	541.511	550.925	78,146	110,053	131,389	153,914
Sugar and preparations	.40	63.977	73.382	75.814	76.965	280.870	322.158	332.831	337.887	50,452	69,954	83,213	97,268
Roots and starchy vegetables:													
Irish potato	.40	29.548	33.891	35.016	35.547	25.640	29.409	30.383	30.845	23,302	32,308	38,434	44,924
Sweet potato	.40	36.274	41.607	42.985	43.638	43.768	50.202	51.865	52.653	28,606	39,664	47,180	55,150
Others	.25	80.516	87.924	89.776	90.741	77.494	84.623	86.406	87.336	63,495	83,817	98,538	114,678
Vegetables and pulses:													
Vegetables, fresh	.45	50.723	59.092	61.273	62.339	11.994	13.973	14.489	14.741	40,000	56,332	67,253	78,784
Vegetables, processed	.45	6.112	7.120	7.383	7.512	2.360	2.749	2.851	2.900	4,820	6,787	8,104	9,494
Pulses	.25	33.378	36.449	37.216	37.617	137.028	149.635	152.786	154.431	26,322	34,746	40,848	47,540
Fruit:													
Apples, pears and grapes	.55	1.420	1.707	1.781	1.818	4.720	5.673	5.919	6.042	1,120	1,627	1,955	2,298
Banana	.55	67.319	80.917	84.418	86.168	57.090	68.622	71.591	73.075	53,088	77,137	92,657	108,899
Citrus	.55	39.386	47.342	49.390	50.414	14.470	17.393	18.145	18.522	31,060	45,131	54,210	63,713
All others	.55	56.282	67.651	70.578	72.041	33.870	40.712	42.473	43.354	44,384	64,491	77,466	91,045
Processed	.55	3.430	4.123	4.301	4.390	8.653	10.401	10.851	13.313	2,705	3,930	4,721	5,548
Meat:													
Beef	1.00	11.434	15.630	16.717	17.254	22.170	30.306	32.413	33.455	9,017	14,900	18,349	21,806
Other fresh	1.00	5.202	7.111	7.605	7.850	21.140	28.898	30.907	31.900	4,102	6,779	8,347	9,921
Processed	.50	9.432	11.158	11.611	11.828	33.590	39.737	41.349	42.122	7,438	10,637	12,744	14,948
Poultry	1.00	10.974	15.001	16.044	16.560	17.580	24.032	25.702	26.528	8,654	14,300	17,610	20,929
Fish:													
Fresh	.55	15.547	18.688	19.495	19.901	11.981	14.401	15.024	15.336	12,260	17,815	21,398	25,151
Others	.55	10.148	12.198	12.725	12.990	25.524	30.780	32.007	32.671	8,003	11,628	13,967	16,417
Milk:													
Fresh	.70	36.045	45.309	47.688	48.878	26.873	33.779	33.553	36.440	28,425	43,193	52,342	61,772
Evaporated, etc.	.35	27.286	30.778	31.707	32.143	107.468	121.224	124.878	126.597	21,518	29,340	34,802	40,622
Cheese	.60	2.478	3.023	3.164	3.234	10.569	12.894	13.497	13.793	1,954	2,882	3,473	4,087
Eggs	1.40	5.408	8.181	8.907	9.259	9.726	14.715	16.109	16.651	4,265	7,799	9,776	11,702
Oils and fats:													
Butter	.85	2.930	3.845	4.081	4.195	26.009	34.124	36.231	37.245	2,311	3,665	4,479	5,302
Others	.40	24.614	28.232	29.169	29.610	266.710	305.916	316.051	320.852	19,411	26,913	32,016	37,421

Table 7c

Leeward Islands, Windward Islands, and Barbados: Elasticities of demand, consumption, calorie content and total demand, for specified foods, 1958 and projections

Commodity	Elasticity	Consumption, pounds per year per capita				Calories, per day per capita				Total demand, 1,000 pounds			
	1958	1958	1965	1970	1975	1958	1965	1970	1975	1958	1965	1970	1975
Cereals:													
Rice	.45	52.469	56.195	59.081	61.442	232.662	249.181	261.977	272.447	34,142	40,457	45,731	51,134
Flour	.70	112.214	124.670	134.207	142.062	488.742	542.992	584.535	618.747	73,019	89,755	103,880	118,229
Corn and meal	.30	13.669	14.325	14.817	15.227	50.928	53.373	55.206	56.734	8,895	10,313	11,469	12,672
Others	.70	1.102	1.226	1.318	1.396	5.027	5.585	6.012	6.364	717	883	1,020	1,162
Sugar and preparations	.40	84.984	90.338	94.502	97.902	373.333	396.853	415.146	430.080	55,300	65,038	73,147	81,478
Roots and starchy vegetables:													
Irish potato	.70	18.078	20.084	21.621	22.886	15.687	17.428	18.762	19.860	11,764	14,459	16,735	19,047
Others	0	161,534	161.534	161.534	161.534	157.914	157.914	157.914	157.914	105,112	116,294	125,032	134,435
Vegetables and pulses:													
Vegetables, fresh	.50	39.629	42.760	45.177	47.159	9.371	10.111	10.683	11.151	25,787	30,785	34,963	39,247
Vegetables, processed	.70	1.529	1.699	1.829	1.936	.418	.464	.500	.529	995	1,223	1,416	1,611
Pulses	.50	7.879	8.501	8.982	9.376	32.347	34.902	36.876	38.493	5,127	6,120	6,952	7,803
Fruit:													
Apples, pears and grapes	.66	.552	.610	.654	.691	.129	.143	.153	.161	359	439	506	575
Banana	.66	36.834	40.702	43.648	46.079	30.669	33.889	36.343	38.367	23,968	29,303	33,785	38,349
Citrus	.66	19.751	21.825	23.405	24.709	7.064	7.806	8.371	8.837	12,852	15,713	18,116	20,564
Others	.66	102.797	113.591	121.814	128.599	58.580	64.731	69.417	73.284	66,891	81,778	94,288	107,025
Processed	.70	1.990	2.211	2.380	2.519	6.774	7.526	8.102	8.576	1,295	1,592	1,842	2,096
Meat:													
Beef	1.10	9.130	10.728	11.942	12.946	17.703	20.801	23.156	25.103	5,941	7,723	9,243	10,774
Goat	.50	3.535	3.814	4.030	4.207	5.602	6.045	6.386	6.666	2,300	2,746	3,119	3,501
Other fresh	1.10	1.480	1.739	1.936	2.099	6.014	7.066	7.866	8.528	963	1,252	1,499	1,747
Salted	.10	10.581	10.750	10.877	10.983	71.663	72.810	73.670	74.386	6,885	7,739	8,419	9,140
Tinned	1.50	3.475	4.302	4.935	5.456	13.587	16.821	19.294	21.332	2,261	3,097	3,820	4,541
Processed	1.00	1.489	1.726	1.906	2.055	7.215	8.362	9.235	9.957	969	1,243	1,475	1,710
Poultry	1.50	2.104	2.605	2.988	3.303	3.371	4.173	4.787	5.292	1,369	1,875	2,313	2,749
Fish:													
Fresh	.45	49.604	53.126	55.854	58.087	30.228	40.943	43.044	44.765	32,278	38,247	43,233	48,342
Tinned	1.50	2.646	3.276	3.757	4.153	10.339	12.800	14.681	16.232	1,722	2,356	2,908	3,456
Salted	-.05	12.787	12.685	12.606	12.544	27.946	27.722	27.555	27.415	8,321	9,132	9,757	10,440
Milk:													
Fresh	.90	56.477	64.553	70.709	75.792	42.104	48.125	52.714	56.503	36,750	46,474	54.731	63,077
Evaporated, etc.	.45	14.109	15.110	15.886	16.521	55.571	59.517	62.573	65.074	9,181	10,878	12,296	13,749
Cheese	.85	1.984	2.253	2.456	2.626	8.463	9.606	10.477	11.197	1,291	1,622	1,901	2,185
Eggs	1.40	8.205	10.027	11.421	12.570	14.671	17.928	20.422	22.476	5,339	7,219	8,840	10,461
Oils and fats:													
Butter	1.00	2.866	3.322	3.668	3.955	25.441	29.486	32.564	35.109	1,865	2,392	2,839	3,291
Others	.60	22.046	24.140	25.750	27.072	230.888	252.822	269.677	283.530	14,346	17,379	19.931	22,530

Table 7d

British Guiana: Elasticities of demand, consumption, calorie content and total demand, for specified foods, 1958 and projections

Commodity	Elasticity	Consumption, pounds per year per capita				Calories, per day per capita				Total demand, 1,000 pounds			
	1958	1958	1965	1970	1975	1958	1965	1970	1975	1958	1965	1970	1975
Cereals:													
Rice	0	149.113	149.113	149.113	149.113	661.198	661.198	661.198	661.198	78,702	96,406	110,999	127,988
Flour	.80	95.993	100.313	100.793	100.985	418.074	436.887	438.978	439.814	50,665	64,855	75,030	86,679
Corn and meal	.80	.988	1.032	1.037	1.039	3.681	3.847	3.865	3.872	521	667	772	892
Others	.80	8.981	9.385	9.430	9.448	40.430	42.249	42.452	42.532	4,740	6,068	7,020	8,110
Sugar and preparations	.40	68.011	69.575	69.711	69.778	298.580	305.447	306.044	306.343	35,896	44,982	51,893	59,893
Roots and starchy vegetables:													
Irish potato	.50	33.389	33.861	33.961	33.994	28.582	29.383	29.469	29.497	17,623	21,892	25,281	29,177
Sweet potato	.50	3.087	3.175	3.183	3.188	3.728	3.832	3.843	3.847	1,630	2,053	2,369	2,736
Others	.25	53.541	54.292	54.398	54.398	51.531	52.252	52.355	52.355	28,259	35,102	40,494	46,692
Vegetables and pulses:													
Vegetables, fresh	.55	27.933	28.798	28.882	28.939	7.055	7.273	7.294	7.309	14,744	18,619	21,500	23,744
Vegetables, processed	.55	2.838	2.926	2.934	2.940	.776	.800	.802	.804	1,498	1,892	2,184	2,524
Pulses	.40	16.553	16.935	16.967	16.982	67.958	69.520	69.656	69.724	8,737	10,948	12,631	14,577
Fruit:													
Apples, pears and grapes	.80	1.798	1.879	1.888	1.891	.420	.439	.441	.442	949	1,215	1,405	1,623
Banana	.80	4.514	4.717	4.740	4.749	3.758	3.927	3.946	3.953	2,382	3,050	3,528	4,076
Citrus	.80	19.130	19.991	20.087	20.125	6.842	7.150	7.184	7.198	10,097	12,925	14,953	17,274
Others	.80	2.697	2.818	2.832	2.837	1.537	1.606	1.614	1.617	1,423	1,822	2,108	2,435
Processed	.80	1.785	1.865	1.874	1.878	6.077	6.350	6.381	6.393	942	1,206	1,395	1,612
Meat:													
Beef	1.10	13.892	14.753	14.837	14.878	26.936	28.606	28.768	28.848	7,332	9,538	11,045	12,770
Other fresh	1.10	2.917	3.098	3.115	3.124	11.854	12.589	12.660	12.696	1,540	2,003	2,319	2,681
Processed	.25	5.107	5.178	5.189	5.189	33.101	33.564	33.630	33.630	2,695	3,348	3,862	4,455
Poultry	1.50	1.416	1.537	1.548	1.552	2.267	2.460	2.478	2.487	748	994	1,152	1,332
Fish:													
Fresh	.55	16.824	17.347	17.397	17.430	12.967	13.369	13.407	13.434	9,816	11,216	12,951	14,961
Salted and pickled	0	8.790	8.790	8.790	8.790	19.213	19.213	19.213	19.213	4,639	5,683	6,445	7,545
Canned	1.50	2.418	2.624	2.643	2.652	9.452	10.256	10.331	10.369	1,276	1,697	1,967	2,276
Milk:													
Fresh	.70	46.739	48.563	48.749	48.843	34.846	36.205	36.344	36.414	24,669	31,397	36,289	41,924
Evaporated, etc.	.45	18.403	18.863	18.919	18.937	72.479	74.291	74.508	74.581	10,541	12,195	14,084	16,254
Cheese	.75	1.791	1.867	1.876	1.878	7.643	7.964	8.002	8.018	945	1,207	1,397	1,612
Eggs	1.60	3.193	3.480	3.510	3.525	5.743	6.260	6.312	6.341	1,686	2,251	2,613	3,026
Oils and fats:													
Butter	1.20	1.468	1.568	1.577	1.583	13.035	13.921	14.000	14.052	775	1,014	1,173	1,358
Others	.30	32.354	32.905	32.968	32.968	350.577	356.537	357.238	357.238	17,077	21,275	24,542	28,298

Table 8

Jamaica: Protein and fat consumption, 1958 and projections

Commodity	Protein, grams per day per capita				Fat, grams per day per capita			
	1958	1965	1970	1975	1958	1965	1970	1975
Cereals:								
Rice	3.710	4.103	4.382	4.571	.570	.630	.673	.702
Flour	16.100	18.000	19.336	20.238	2.100	2.348	2.522	2.640
Wheat	.170	.180	.187	.192	.030	.032	.033	.034
Corn and meal	1.870	2.003	2.096	2.158	.810	.868	.908	.935
Others	.780	.826	.859	.881	.080	.085	.088	.090
Sugar and preparations	1.020	1.116	1.184	1.230	.080	.088	.093	.096
Roots and starchy veg.:								
Irish potato	.270	.315	.346	.367	.020	.023	.026	.027
Sweet potato	.200	.233	.256	.272	.050	.058	.064	.068
Others	3.990	3.894	3.830	3.787	.710	.693	.682	.674
Vegetables and pulses:								
Tomatoes	.511	.577	.624	.656	.140	.158	.171	.180
Other vegetables, fresh	.318	.359	.389	.408	.047	.053	.057	.060
Other vegetables, processed	.026	.030	.033	.035	.004	.005	.005	.005
Pulses	2.190	2.473	2.676	2.810	.410	.463	.501	.526
Fruit:								
Apples, pears and grapes	.003	.003	.004	.004	.009	.010	.011	.012
Banana	1.218	1.404	1.537	1.626	.041	.047	.052	.055
Citrus—orange and grapefruit	.210	.242	.265	.280	.040	.046	.050	.053
Citrus—lime and tangerine	.550	.635	.696	.737	.018	.021	.023	.024
Coconut	.700	.807	.883	.935	5.270	6.076	6.651	7.035
All others	.527	.609	.667	.706	.476	.550	.603	.638
Processed	.010	.012	.013	.014	.020	.023	.026	.027
Meat:								
Beef	3.130	3.941	4.517	4.902	2.000	2.518	2.886	3.132
Goat	.600	.670	.721	.754	.300	.340	.360	.377
Mutton	.900	1.133	1.299	1.409	.170	.214	.245	.266
Pork	.550	.692	.794	.861	2.060	2.594	2.973	3.226
Beef and pork, salted	1.000	1.024	1.040	1.051	1.410	1.444	1.466	1.482
Processed	.110	.136	.154	.167	.270	.333	.379	.409
Poultry	.360	.487	.577	.638	.260	.352	.417	.461
Fish:								
Fresh	1.550	1.750	1.894	1.989	.480	.542	.587	.616
Tinned	.940	1.272	1.508	1.666	1.030	1.394	1.652	1.825
Salted	5.680	5.612	5.566	5.532	.630	.622	.617	.614
Others	.232	.262	.284	.298	.081	.091	.099	.104
Milk and products:								
Fresh	1.220	1.479	1.663	1.785	1.110	1.345	1.513	1.624
Evaporated, etc.	3.300	3.650	3.897	4.066	1.770	1.958	2.090	2.181
Cheese	.580	.696	.779	.833	.360	.432	.483	.517
Other products	.087	.104	.117	.125	.385	.462	.517	.553
Eggs	1.280	1.701	2.002	2.203	1.210	1.608	1.892	2.082
Oils and fats:								
Butter	.020	.025	.028	.030	2.570	3.174	3.606	3.894
Others	.038	.043	.047	.050	7.260	8.284	9.017	9.503
Alcoholic drinks:								
Beer	.100	.119	.132	.141	-	-	-	-
Wine	-	-	-	-	-	-	-	-
Others	-	-	-	-	-	-	-	-

Table 9a

Land use, by territories, most recent census years

Land use 1/	Jamaica (1958)	Trinidad and Tobago (1956-57)	Antigua, Barbuda (1946)	Barbados (1946)	Dominica (1958)	Grenada (1956-57)	Montserrat (1957)	St. Kitts-Nevis-Anguilla (1957-58)	St. Lucia (1958)	St. Vincent (1957-58)	British Guiana 2/
	Acres										
Total land area	2,823,040	1,267,200	109,120	106,240	195,200	85,120	20,800	97,280	152,320	96,000	53,120,000
Land in farms	1,823,000	470,647	48,787	97,385	73,820	70,450	17,830	40,600	82,060	45,975	2,938,964
Land in farms as a percentage of total area	64.6 %	37.1 %	44.7 %	91.7 %	37.8 %	82.7 %	85.7 %	41.7 %	53.9 %	47.8 %	5.5 %
Crop land	613,000	320,711	17,556	67,847	41,600	51,500	7,800	28.200	46,830	27,770	312,500
Crop land as a percentage of land in farms	34 %	68 %	36 %	69 %	56 %	73 %	44 %	69 %	57 %	60 %	11 %
Permanent meadow and pasture	708,300	13,085	10,867	17,587	3,900	5,812	3,770	6,100	8,850	5,225	
Improved	90,000	N. A.	N. A.	N. A.	460	980	530	N. A.	1,040	540	
Unimproved	3/ 618,300	4/ 13,085	4/ 10,867	4/ 17,589	3,490	4,832	3,240	6,100	7,810	4,685	2,626,000
Forest and woodland	224,800	5/ 89,414	9,241	1,510	21,535	9,256	4,880	6.300	18,860	7.760	
Other agricultural land	6/ 276,900	7/ 47,437	11,123	10,439	6,735	3,882	1,380		7,520	5,220	

1/ Sub classes may not add to total land area due to sampling errors.
2/ Figures for British Guiana have been taken from the 1952 Census except that 1958 figures of rice and sugar acreage have been embodied under crops.
3/ Includes ruinate used as pastures.
4/ Includes unknown area of improved grassland.
5/ May include unknown area of forest not in farms.
6/ Includes ruinate not used as pasture.
7/ Excludes built on land or service areas in farms.

Sources: Agricultural Statistics — Series 2 No. 1. Federal Statistical Office (1960), Agricultural Statistics for Jamaica 1958; and Some Statistic Tables on West Indian Agriculture, by D. I. Edwards, Institute of Social and Economic Research, Jamaica.

Note: Crop land — land under tree crops and medium and short term crops, land in process of preparation for crops or normally cropped, but fallow
Permanent meadow and pasture, grassland (improved and unimproved) and other land suitable for grazing animals.
Forest and woodland — tree covered land not suitable for growing.
Other land — land not falling into above categories.

Table 9b

Projections of land use, by territories

Land use	For base year see Table 9a				1965			
	Jamaica	Trinidad and Tobago	Windward Islands, Leeward Islands and Barbados	British Guiana	Jamaica	Trinidad and Tobago	Windward Islands, Leeward Islands and Barbados	British Guiana
	1,000 acres				1,000 acres			
Total land area	2,823	1,267	862	53,120	2,823	1,267	862	53,120
Land in farms	1,823	528	477	2,939	1,902	550	485	3,309
Land in farms as a percent of total	65 %	42 %	55 %	5 %	67 %	44 %	56 %	6 %
Crop land	613	321	289	313	682	355	520	459
Crop land as a percentage of land in farms	34 %	61 %	61%	11 %	36 %	65 %	66 %	14 %
Permanent meadow and pasture	708		62		750			
Improved	90		4		180			
Unimproved	618	207	58	2,626	570	195	165	2,850
Forest and woodland	225				220			
Other agricultural land	277		126		250			

	1970				1975			
	Jamaica	Trinidad and Tobago	Windward Islands, Leeward Islands and Barbados	British Guiana	Jamaica	Trinidad and Tobago	Windward Islands, Leeward Islands and Barbados	British Guiana
	1,000 acres				1,000 acres			
Total land area	2,823	1,267	862	53,120	2,823	1,267	862	53,120
Land in farms	1,908	570	520	3,489	1,905	574	550	3,747
Land in farms as a percentage of total	68 %	44 %	60 %	7 %	68 %	45 %	64 %	7 %
Crop land	683	365	340	489	685	363	363	497
Crop land as a percentage of land in farms	36 %	64 %	65 %	14 %	36 %	64 %	66 %	13 %
Permanent meadow and pasture	865				900			
Improved	280				350			
Unimproved	585	205	180	3,000	550	209	187	3,250
Forest and woodland	360				320			
Other agricultural land								

Table 9c

Total and per capita land use, by territories

Item	Jamaica	Trinidad and Tobago	Antigua, Barbuda	Barbados	Dominica	Grenada	Mont-serrat	St. Kitts-Nevis-Anguilla	St. Lucia	St. Vincent	British Guiana
Total land area (acres)	2,823,040	1,267,200	109,120	106,240	195,200	85,120	20,800	97,280	152,320	96,000	53,120,000
Population 1960	1,613,148	827,957	54,183	232,085	59,479	88,800	12,336	56,493	86,145	80,005	558,769
Land area per capita (acres)	1.8	1.5	2.0	.5	3.5	.9	1.7	1.7	1.8	1.2	95.1
Land in farms (acres)	1,823,000	470,647	48,787	97,385	73,820	70,450	17,830	40,600	82,060	45,975	2,938,964
Land in farms per capita (acres)	1.1	.6	.9	.4	1.2	.8	1.4	.7	.9	.6	5.3
Crop land (acres)	613,000	320,711	17,556	67,847	41,600	51,500	7,800	28,200	46,830	27,770	312,500
Crop land per capita (acres)	.4	.4	.3	.3	.7	.6	.6	.5	.5	.3	.6

Sources: Agricultural Statistics — Series 2, No. 1, Federal Statistical Office (1960); Agricultural Statistics for Jamaica, 1958.

Table 9d

Projections of farm land per capita and crop land per capita, by territories

Item	Jamaica	Trinidad and Tobago	Leeward Islands, Windward Islands, and Barbados	British Guiana
1965				
Total farm land (1,000 acres)	1,902	550	485	3,309
Population (1,000)	1,744	953	719	647
Farm land per capita (acres)	1.1	.6	.7	5.1
Total crop land (1,000 acres)	682	355	320	459
Crop land per capita (acres)	.4	.4	.4	.7
1970				
Total farm land (1,000 acres)	1,908	570	520	3,489
Population (1,000)	1,887	1,098	740	744
Farm land per capita (acres)	1.0	.5	.7	4.7
Total crop land (1,000 acres)	683	365	340	489
Crop land per capita (acres)	.4	.3	.5	.7
1975				
Total farm land (1,000 acres)	1,905	574	550	3,747
Population (1,000)	2,040	1,264	832	858
Farm land per capita (acres)	.9	.5	.7	4.4
Total crop land (1,000 acres)	683	363	363	497
Crop land per capita (acres)	.4	.3	.4	.6

Table 10a

Jamaica: Total acreages of crops, 1958 and projections

Crop	1958	1965	1970	1975
	1,000 acres			
Sugar	153.1	160.7	165.6	167.2
Banana	140.0	169.4	181.8	183.7
Cocoa	13.1	49.0	63.0	63.0
Coffee	35.0	32.0	35.0	38.0
Coconuts	94.0	103.2	98.2	103.1
Citrus	45.0	75.0	80.2	90.0
Corn	37.0	20.0	15.2	10.0
Roots	100.0	90.0	85.0	75.0
Vegetables	32.6	33.0	36.0	40.0
Pulses	43.5	40.0	35.0	30.0
Rice	10.0	6.0	6.0	6.0
Other trees and spices	49.0	46.7	46.2	45.6
Tobacco	2.0	3.3	3.8	4.4
Total crops	754.3	828.3	851.0	856.0
Allowance for inter-cropping	-141.3	-146.7	-167.8	-170.7
Cropland	613.0	681.6	683.2	685.3

Table 10b

Trinidad and Tobago: Total acreages of crops, 1958 and projections

Crop	1958	1965	1970	1975
	1,000 acres			
Sugar cane	90.3	94.8	97.6	98.6
Citrus	11.1	18.0	22.0	24.0
Bananas	13.5	16.4	18.3	19.3
Cocoa	122.3	122.3	122.3	122.3
Coffee	5.2	6.0	6.1	6.1
Coconuts	60.4	64.2	68.0	69.0
Ground provisions	15.0	14.0	13.0	11.0
Vegetables	11.0	12.0	12.8	12.9
Pulses	24.2	20.1	18.2	15.0
Corn	15.7	12.0	10.0	7.0
Rice	20.0	18.0	19.8	20.7
Spices and other fruit trees	7.7	7.7	7.7	7.7
Total crops	396.4	405.5	415.8	413.6
Allowance for inter-cropping	-75.7	-50.0	-50.0	-50.0
Cropland	320.7	355.5	365.8	363.6

Table 10c

Windward Islands, Leeward Islands, and Barbados: Total acreages of crops, 1958 and projections

Crop	1958	1965	1970	1975
	1,000 acres			
Sugar cane 1/	73.2	76.9	79.3	80.1
Bananas	32.2	57.6	66.7	89.3
Cocoa	19.6	20.0	25.3	25.4
Coconuts	28.3	30.4	38.3	40.0
Cotton	10.0	6.0	4.4	4.2
All other crops	82.0	79.0	75.6	73.8
Total crops	245.3	269.9	289.6	312.8
Adjustment for inter-cropping	43.8	50.1	50.4	50.2
Cropland	289.1	320.0	340.0	363.0

1/ Excludes Windward Islands where sugar is expected to become negligible.

Table 10d

British Guiana: Total acreages of crops, 1958 and projections

Crop	1958	1965	1970	1975
	1,000 acres			
Sugar cane	90.9	95.4	98.3	99.3
Rice	155.1	284.3	307.2	311.8
Coconuts	26.7	36.9	43.1	46.2
All other	1/ 39.8	42.0	40.0	40.0
Cropland	312.5	458.6	488.6	497.3

1/ 1952 estimate.

Table 11a

Sugar cane: Acreages reaped, by territories, 1940-60 1/

Year	Antigua (1)	Barbados (2)	British Guiana (3)	Jamaica (4)	St. Kitts (5)	Trinidad and Tobago (6)	Total
	Acres						
1940	12,669	42,425	64,378	44,484	9,735	58,160	231,000
1941	11,374	42,371	63,642	53,319	10,178	52,000	232,884
1942	11,703	40,942	62,730	63,322	10,052	47,200	235,949
1943	9,187	38,245	62,348	64,910	9,063	45,600	229,353
1944	8,525	37,496	60,733	65,196	9,310	51,200	232,460
1945	8,823	36,761	59,098	61,154	8,581	56,000	230,417
1946	9,560	40,824	60,229	61,827	9,524	61,600	243,564
1947	10,269	41,166	62,033	66,214	10,718	64,000	254,400
1948	8,792	40,486	56,626	72,427	9,880	67,400	255,611
1949	8,494	39,705	57,247	79,578	10,534	67,400	262,958
1950	11,800	41,241	64,940	90,778	11,330	70,332	290,421
1951	9,960	43,024	67,126	96,518	12,210	67,316	296,154
1952	12,423	44,740	73,924	121,762	12,737	73,657	339,243
1953	12,650	45,982	73,198	136,430	14,071	74,191	356,522
1954	11,750	46,253	79,788	153,671	14,785	76,309	382,556
1955	11,854	46,084	77,500	150,413	14,214	78,001	378,066
1956	12,800	46,987	75,831	139,438	13,949	79,918	368,923
1957	12,680	47,158	83,432	143,787	13,941	81,348	382,346
1958	12,400	47,240	86,988	152,568	13,007	83,635	395,838
1959	11,970	46,960	89,134	174,857	13,601	83,593	420,115
1960	11,860	47,091	96,303	186,787	14,286	87,420	443,747

1/ Excluding acres reaped in the Windward Islands.

Sources: (1) Annual Reports of the Department of Agriculture, Government of Antigua. (2) Annual Crop Returns Barbados Sugar Producers Association. (3) Commission of Inquiry H.M.S.O. Col. No. 249 (1949) Table XXXI. p. 174 (1940-1948). (4) Annual Statistical Digest, Government of Jamaica. (5) Annual Crop Returns, Sugar Producers Association, St. Kitts. (6) 1940-1949 estimated at 80% of cultivated acreage shown in Table 107. Annual Statistical Digest 1958. BWISA figures for 1950-1960.

Table 11b

Sugar cane: Estimated total acreages, by territories, 1958 and projections

Assumptions:
(a) Gradual increase up to 1975; 5 % between 1958 and 1965; 3 % between 1965 and 1970; 1 % between 1970 and 1975.
(b) 1958 PERCENTAGE BREAKDOWN KEEPS CONSTANT.

Territory	1958 Actual	1965 Estimated	1970 Estimated	1975 Estimated
	Acres			
Antigua	12,450	13,069	13,460	13,594
Barbados	47,241	49,591	51,079	51,590
British Guiana	90,907	95,430	98,293	99,276
Jamaica	153,123	160,741	165,564	167,219
St. Kitts	13,650	14,307	14,736	14,883
Trinidad and Tobago	90,257	94,790	97,633	98,610
Total	407,628	427,908	440,705	445,152
	Estimated increases			
	From 1958 to 1965	From 1965 to 1970	From 1970 to 1975	Total increase, 1958 to 1975
	Acres			
Antigua	619	391	134	1,144
Barbados	2,350	1,488	511	4,349
British Guiana	4,523	2,863	983	8,369
Jamaica	7,618	4,823	1,655	14,096
St. Kitts	677	429	147	1,253
Trinidad and Tobago	4,493	2,843	977	8,813
Total	20,280	12,837	4,407	37,524

Table 11c

Sugar cane: Projections of acreages reaped by territories

PROJECTION 1. MAXIMUM

(a) Assumption that as a maximum 95% of estimated acreages under cane will be reaped in each year: Maximum Figures.
(b) Using projected acreages from Table 11b.

Year	Antigua	Barbados	British Guiana	Jamaica	St. Kitts	Trinidad and Tobago	Total
				Acres			
1965	12,415	47,111	90,659	152,704	13,592	90,050	406,531
1970	12,787	48,525	93,378	157,286	14,000	92,751	418,727
1975	12,914	49,010	94,312	158,858	14,139	93,680	422,913

PROJECTION 2. MINIMUM

(a) Assumption that as a minimum 90% of land under cane reaped in each year.
(b) Using projected acreages from Table 11b.

	Antigua	Barbados	British Guiana	Jamaica	St. Kitts	Trinidad and Tobago	Total
				Acres			
1965	11,762	44,632	85,887	144,667	12,876	85,311	385,135
1970	12,114	45,971	88,464	149,008	13,262	87,870	396,689
1975	12,235	46,431	89,348	150,050	13,395	88,749	400,208

Table 11d

Sugar cane: Yield per acre reaped, by territories, 1940-60

Year or period	Antigua (1)	Barbados (2)	British Guiana (3)	Jamaica (4)	St. Kitts (5)	Trinidad and Tobago 1/ (6)
	Tons					
1940	9.8	21.1	26.1	21.9	26.9	16.3
1941	12.9	21.5	31.6	29.8	28.5	21.8
1942	16.5	23.7	32.6	24.9	27.2	19.1
1943	18.3	29.6	22.5	24.3	29.0	19.4
1944	14.3	23.6	23.7	25.5	22.8	20.4
1945	16.8	30.1	28.0	26.9	26.2	19.8
1946	20.7	27.1	28.4	31.6	28.0	25.3
1947	17.5	23.7	27.0	29.7	26.1	24.8
1948	11.5	17.5	2/ 27.5	31.1	26.8	26.2
1949	18.2	30.3	2/ 27.5	32.6	27.7	31.1
1950	21.3	31.9	33.0	23.6	29.5	28.3
1951	17.4	39.3	35.9	21.6	30.3	33.4
1952	23.9	33.7	36.1	20.3	34.2	28.0
1953	19.5	30.1	37.8	23.0	32.1	29.8
1954	18.9	33.6	34.3	22.8	28.7	29.8
1955	16.2	31.8	35.2	23.7	29.5	30.4
1956	20.9	29.5	37.6	23.1	32.1	26.0
1957	18.1	37.2	35.9	23.6	26.9	26.0
1958	17.1	32.2	40.3	21.2	31.1	30.3
1959	22.6	34.4	36.2	21.9	31.1	26.4
1960	15.4	29.2	-	23.2	33.0	29.9
1940-49 av.	15.65	24.82	27.49	27.83	26.92	22.42
1950-59 av.	19.59	33.37	36.23	22.48	30.55	28.84
1940-60 av.	17.51	29.10	3/ 31.81	25.06	28.94	25.83

1/ For estates only.
2/ The figures for these years have been estimated as being the same as the annual averages for the years 1940-47.
3/ Average for 1940-59.

Sources: (1) Annual Crop Returns, Antigua Sugar Factory.
(2) Annual Crop Returns, Barbados Sugar Producers Association.
(3) Colonial Office Annual Reports (1940-1947); 1948 and 1949 are estimated at average for 1940-1947: (1950-1960) BWISA Handbooks.
(4) Sugar Manufacturers Association, Jamaica.
(5) St. Kitts Sugar Producers Association.
(6) Annual Statistical Digest, Government of Trinidad and Tobago.

Table 11e

Sugar cane: Projected yields per acre reaped, by territories

Territory	Tons of cane per acre		
	1965	1970	1975
Antigua	20.00	20.00	20.00
Barbados	35.00	37.00	40.00
British Guiana	40.00	40.00	40.00
Jamaica	25.00	30.00	35.00
St. Kitts	35.00	37.50	40.00
Trinidad and Tobago	30.00	32.50	35.00

N.B. For reasons for basic assumptions see Text.

Assumptions:

Antigua: Yields beyond 20.00 tons to the acre very unlikely. Calculated at 20.00 t. p. a. throughout (maximum).

Barbados: Substantial increases expected. Estimated at 35 t. p. a. in 1965 increasing by .50 t. p. a. per annum up to 1975.

British Guiana: Double crop each year. Increases expected. Yields expected to approach 40 t. p. a. Estimated at 40.00 t. p. a. throughout (maximum).

Jamaica: Low yields in 1950's. Estimated at 25 t. p. a. in 1965, creeping to 35 t. p. a. in 1975.

St. Kitts: As Barbados.

Trinidad and Tobago: Available figures refer to Estate cultivation only. On the basis of lower yields for peasants, overall estimates placed at 30 t. p. a. in 1965 creeping to 35 t. p. a. in 1975.

Table 11f

Sugar cane: Projections of production, by territories

Year	Antigua	Barbados	British Guiana	Jamaica	St. Kitts	Trinidad and Tobago	Total
	Tons						
1965	248,300	1,648,885	3,626,360	3,817,600	475,720	2,701,500	12,518,365
1970	255,740	1,795,425	3,735,120	4,718,580	525,000	3,014,408	14,044,273
1975	258,280	1,960,400	3,772,480	5,560,030	565,560	3,278,800	15,395,550

Assumption: That acreages will increase as per Table 11c, projection 1. That yields will be equal to figures in Table 11d.

Table 11g

Average of tons of cane per ton of sugar, by territories, 1940-60

Territory	Tons
Antigua	8.36
Barbados	8.73
British Guiana	10.60
Jamaica	9.49
St. Kitts	8.33
Trinidad and Tobago	9.64

Table 11h

Sugar: Production, by territories, 1940-60

Year	Antigua (1)	Barbados 1/ (2)	British Guiana (3)	Grenada (4)	Jamaica (5)	St. Kitts (6)	St. Lucia (7)	St. Vincent (7)	Trinidad and Tobago (8)	Total
	Tons									
1940	14,113	67,136	167,645	912	99,283	30,892	8,026	1,465	92,192	481,664
1941	17,584	71,226	188,009	691	156,553	37,187	10,126	1,283	131,609	614,263
1942	21,979	86,669	191,767	873	155,761	33,061	8,780	1,001	104,367	603,758
1943	21,867	132,031	131,631	1,118	165,669	32,162	6,629	916	70,920	562,943
1944	16,280	82,818	138,472	972	155,882	27,622	6,217	963	74,263	503,439
1945	20,663	98,120	157,201	1,014	152,225	28,543	6,111	1,206	76,347	541,430
1946	26,023	111,933	171,051	1,073	177,886	33,513	5,673	1,526	109,603	633,281
1947	22,736	86,369	167,489	908	170,255	34,357	6,165	1,744	110,068	600,091
1948	12,174	56,469	172,991	872	192,814	31,393	9,262	2,352	115,941	594,268
1949	18,263	133,868	174,227	1,636	237,744	35,668	9,127	2,084	159,135	771,752
1950	30,681	141,706	195,651	1,669	271,582	41,204	10,441	2,750	146,508	842,192
1951	18,511	163,313	217,306	2,758	267,928	44,272	9,825	2,791	140,668	867,372
1952	33,684	156,216	242,692	1,905	265,871	50,613	9,203	3,358	137,358	900,900
1953	31,588	150,499	240,176	2,107	330,237	51,579	10,392	3,549	152,618	972,745
1954	12,601	163,892	238,922	2,529	363,303	46,922	8,771	3,852	172,767	1,016,559
1955	19,836	150,139	250,111	2,515	396,551	49,356	10,617	4,356	192,793	1,076,274
1956	28,713	134,330	263,333	1,434	356,309	50,371	10,874	3,938	160,230	1,009,532
1957	31,985	191,498	284,973	2,665	359,067	44,794	9,314	3,557	167,805	1,095,653
1958	19,323	141,159	306,361	2,062	332,975	42,498	8,198	4,284	187,500	1,044,360
1959	31,828	169,433	284,425	1,910	378,226	46,789	6,931	4,122	181,131	1,104,795
1960	20,167	139,402	332,500	N. A.	418,200	50,179	5,448	3,619	217,919	1,187,434

1/ Fancy molasses are excluded from this table.

Sources: (1) Antigua Sugar Factory Annual Crop Returns.
(2) Barbados Sugar Producers Association.
(3) (1940-1945) Caribbean Commission Crop Inquiry Series No. 6. (1946-1949) Colonical Office Annual Reports. (1950-1960) BWISA Handbooks for 1952, 1954, 1958 and 1960 (unpublished).
(4) 1940-1949 Annual Reports Dept. of Agriculture, Govt. of Grenada; (1950-1960) BWISA Handbooks for 1952, 1954, 1958 and 1960 (unpublished).
(5) Annual Digest of Statistics, Govt. of Jamaica.
(6) St. Kitts Sugar Factory Annual Crop Returns.
(7) Colonical Office Annual Reports and BWISA Handbooks for 1952, 1954, 1958 and 1960 (unpublished).
(8) Annual Statistical Digest, Government of Trinidad and Tobago.

Table 11i

Projections of tons of sugar produced, by territories

Year	Antigua	Barbados	British Guiana	Jamaica	St. Kitts	Trinidad and Tobago	Total
	Tons						
1965	29,701	188,876	342,109	402,276	57,109	280,239	1,300,310
1970	30,591	208,441	352,370	497,216	62,649	312,698	1,463,965
1975	30,895	224,559	355,894	585,553	67,894	340,124	1,604,919

Table 12a

Rice: Acreage, yield, and production of rough rice, and milled rice production, by territories, 1950-60 1/

Years	British Guiana 2/					Trinidad and Tobago 5/				Jamaica 7/			
	Area (acres)		Rough rice production (tons)	Yield per acre 4/ (tons)	Milled rice production (tons)	Area (acres)	Rough rice production (tons)	Yield per acre (tons)	Milled rice production (tons)	Area (acres)	Rough rice production (tons)	Yield per acre (tons)	Milled rice production (tons)
	Planted	Reaped 3/											
1950	83,668	103,016	102,902	.999	61,745	15,000	17,188	1.145	11,000	5,000	5,000	1.000	3,000
1951	100,249	116,872	112,929	.966	67,760	15,169	17,400	1.147	11,160	5,432	5,167	.951	3,100
1952	133,301	150,816	123,522	.819	74,120	18,327	18,000	.982	11,500	6,500	6,500	1.000	3,900
1953	111,446	132,100	132,144	1.000	79,300	20,000	19,355	.963	12,000	10,000	11,000	1.100	6,600
1954	130,075	149,403	147,604	.988	88,562	20,000	19,355	.963	12,000	12,800	13,000	1.016	7,800
1955	125,906	142,931	129,409	.905	77,686	20,000	21,428	1.071	13,714	20,000	20,000	1.000	12,000
1956	118,470	136,029	130,783	.961	78,470	20,000	19,355	.968	12,000	18,000	16,667	.926	10,000
1957	136,990	152,475	106,723	.700	64,034	20,000	19,355	.968	12,000	10,000	9,167	.917	5,500
1958	155,140	155,140	161,900	1.044	97,140	18,000	14,020	.779	8,973	10,600	9,667	.912	5,800
1959	179,180	179,180	173,118	.966	103,871	18,000	14,844	.825	9,500	10,500	9,333	.889	5,600
1960	220,207	220,207	199,512	.906	119,707	18,000	16,070	.892	10,285	4,000	3,333	.833	2,000

1/ Production figures of rice are milled equivalents of rough rice and not the actual milled quantities. The amounts of rough rice used for animal feed and seeds, etc., and not milled at all, are about 10 % of total rice equivalents for British Guiana, and 5 % for Trinidad and Tobago, and Jamaica.

2/ Sources: Reports of the British Guiana Rice Marketing Board 1960-61.

3/ The difference between acreage planted and acreage reaped is accounted for by the volunteer growth of rough rice in the spring from the grains scattered in harvesting the preceding autumn crop.

4/ Yield per acre is obtained from production of rough rice and acreage reaped.

5/ Except for 1951 and 1952 no firm figures are available. Figures for other years are best estimates arrived at from fragmentary data.
Sources: a) for 1951-52 — Steer and Benson — A Survey of Rice Industry, Government of Trinidad; b) for other years — Colonial Report, Trinidad and Tobago, 1953, 1955, 1956, 1957; Annual Statistical Digest — C.S.O., Trinidad; Tobago, 1953, 1957, 1960; Administration Report of the Agricultural Department, Trinidad and Tobago, 1954, 1955, 1956.

6/ Estimated from the production of rice, assuming rough rice to milled rice ratio at 100:60.

7/ Sources: a) for 1950-51 — Rice Acreage in Jamaica, Department of Statistics, Jamaica 1955; b) for 1952-60, Annual Reports of the Department of Agriculture, later on Ministry of Agriculture and Lands.

Table 12b

Rice: Acreage, by territories, 1960 and projections

Territory	1960	1965	1970	1975
	Acres			
Trinidad and Tobago	18,000	18,000	19,800	20,700
Jamaica	4,000	6,000	6,000	6,000
British Guiana	220,207	284,325	307,182	311,822

Table 12c

Estimated yield of rough rice and milling rate, by territories, averages and projections

Item	1951-55 actual	1956-60 actual	1965	1970	1975
Trinidad and Tobago					
Yield, lbs./acre	2,289	1,993	2,278	2,550	2,761
Milling rate %	63.2	63.1	63.5	65.0	66.0
Jamaica					
Yield, lbs./acre	2,278	2,032	2,200	2,300	2,350
Milling rate %	60.0	60.0	60.0	60.0	60.0
British Guiana					
Yield, lbs./acre	2,089	2,051	2,251	2,250	2,400
Milling rate %	60.0	60	63	65.0	66.0

Table 12d

Rice: Total production 1/, by territories, 1960 and projections

Territory	1960	1965	1970	1975
	Tons			
Trinidad and Tobago	10,285	11,624	14,651	16,840
Jamaica	2,000	3,536	3,696	3,776
British Guiana	119,707	195,084	232,278	250,308

1/ Milled equivalent of rough rice.

Table 13a

Bananas: Acreage, by territories, 1947 through 1960

Year	Jamaica	Dominica	St. Lucia	St. Vincent	Grenada	Trinidad and Tobago
			Acres			
1942	55,000	1/ 2,000	1/ 2,000	1/ 200	1/ 400	10,300
1951	85,000	3,816	N.A.	N.A.	N.A.	N.A.
1952	95,000	3,558	N.A.	N.A.	N.A.	N.A.
1953	115,300	4,503	N.A.	N.A.	N.A.	N.A.
1954	156,250	5,913	N.A.	N.A.	N.A.	N.A.
1955	N.A.	6,419	N.A.	N.A.	4,000	N.A.
1957	N.A.	6,700	N.A.	6,000	9,000	N.A.
1958	100,000	7,050	3,580	8,825	12,800	13,500
1959	N.A.	8,532	N.A.	N.A.	N.A.	N.A.
1960	155,400	10,046	9,800	11,800	14,000	14,900

1/ 1946.

Source: Data and material developed during the study and other available data.

Table 13b

Bananas: Bearing roots by farm size, by territories, 1958

Farm size	Class	Jamaica	Dominica	St. Lucia	St. Vincent	Grenada
Acres				1,000 roots		
0 - 1	Export	1,950	197	117	54	14
	Other	110	9	17	10	51
1 - 5	Export	18,460	657	339	418	80
	Other	650	49	18	27	169
5 - 50	Export	29,060	536	739	465	279
	Other	1,080	59	26	10	123
50 - 100	Export		134	85	21	53
	Other		1	1	-	46
100+	Export	12,650	915	782	342	1,076
	Other	30	2	3	-	123
All acreages	Export	62,120	2,439	2,062	1,299	1,502
	Other	1,870	120	65	47	512
Total roots	All classes	63,990	2,559	2,127	1,346	2,014

1/ 1957.

Source: Data and material developed during the study and other available data.

Data not available for Trinidad and Tobago.

Table 13c

Banana: Acreage, yield, and production, by territories, 1958 1/

	Jamaica	Dominica	St. Lucia	St. Vincent	Grenada	Trinidad and Tobago
Total acreage	100,000	7,050	3,580	8,825	12,800	13,500
Bearing roots (1,000)	63,990	2,559	2,127	1,346	3/ 6,916	4/ 6,049
Roots per acre	640	363	594	153	3/ 494	4/ 406
Pounds per acre	2/ 4,694	10,747	16,781	7,233	3,728	4,664
Pounds per root	2/ 7	30	29	47	N.A.	N.A.
Total production (1,000 pounds)	2/ 469,425	75,765	62,077	63,835	47,719	62,968
Exports (1,000 pounds)	298,800	68,484	56,111	57,700	43,133	9,880
Other production (1,000 pounds)	170,625	7,281	5,966	6,135	4,586	53,088

1/ Inconsistent data make it impossible to compute meaningful weights per stem and numbers of stems per root. However, a special banana study indicated about 30 pounds per stem in Jamaica and 25 pounds per stem in most other areas. Stems per root estimates ranged from 0.26 to 0.54 in 1946 and 0.18 to 0.86 in 1958.

2/ Reduced to exclude unmarketed production estimated at 30 percent of total stem production.

3/ 1960. Acreage for 1960 was 14,000.

4/ 1960. Acreage for 1960 was 14,900.

Source: Data and material developed during the study and other available data.

Table 13d

Bananas: Acreage, by territories, projections

Year	Jamaica	Dominica	St. Lucia	St.Vincent	Grenada	Trinidad and Tobago
	Acres					
1965	169,386	11,837	16,357	11,920	17,500	16,390
1970	181,818	15,200	18,347	13,170	20,020	17,284
1975	183,682	16,619	19,345	14,630	21,000	17,731

Table 13e

Bananas: Total production, by territories, projections

Year	Jamaica	Windward Islands	Trinidad and Tobago
	1,000 stems		
1965	18,500	12,370	1/ 79,399
1970	19,900	14,440	1/ 83,690
1975	20,100	15,820	1/ 85,900

1/ 1,000 pounds.

Table 14a

Sea island cotton: Acreage, by territories, 1939/40 through 1959/60

Year 1/	Anguilla	Antigua	Barbados	Montserrat	Nevis	St.Kitts	St.Lucia	St. Vincent	Total
					Acres				
1939/40	300	2,645	120	4,596	3,000	1,709	29	5,486	17,885
1940/41	150	4,826	453	5,395	4,000	1,400	40	5,180	21,444
1941/42	225	4,197	1,142	4,467	4,500	1,530	38	4,827	20,926
1942/43	200	851	648	4,005	2,573	1,100	16	3,534	12,927
1943/44	70	988	893	3,074	2,544	342	27	2,473	10,411
1944/45	70	1,129	324	3,770	2,680	1,032	22	2,312	11,339
1945/46	60	1,113	151	2,521	1,688	860	6	3,140	9,539
1946/47	30	498	125	2,659	1,400	956	-	1,598	7,266
1947/48	60	1,544	137	3,447	2,000	280	48	1,865	9,381
1948/49	100	3,550	722	3,825	3,106	1,169	-	3,278	15,750
1949/50	60	3,949	386	3,576	1,414	830	-	3,311	13,526
1950/51	60	4,065	187	3,172	2,184	690	-	3,002	13,360
1951/52	90	3,906	126	3,583	3,042	535	-	3,473	14,755
1952/53	60	1,300	207	1,970	3,400	220	-	2,588	9,745
1953/54	64	2,860	106	2,947	2,640	466	-	1,628	10,711
1954/55	50	5,239	45	2,508	3,024	467	-	2,430	13,763
1955/56	60	5,958	40	-	3,473	-	-	1,200	10,731
1956/57	60	3,275	5	1,500	2,034	627	-	1,512	9,013
1957/58	35	5,111	8	2,185	3,190	883	-	1,520	12,932
1958/59	30	2,772	6	2,350	2,146	635	-	2,100	10,039
1959/60	17	2,149	6	1,221	1,854	127	-	738	6,112

1/ Greater portion of crop harvested during the second year of the split year.

Source: Annual Reports of the West Indies Sea Island Cotton Association, Inc.

Table 14b

Sea island cotton: Yields of lint per acre, by territories, 1939/40 through 1959/60

Year 1/	Anguilla	Antigua	Barbados	Montserrat	Nevis	St. Kitts	St. Lucia	St. Vincent	Average
				Pounds					
1939/40	26	161	118	217	161	297	215	120	174
1940/41	126	138	101	218	140	202	140	118	157
1941/42	135	101	93	142	136	123	311	121	124
1942/43	86	85	88	161	77	203	158	103	122
1943/44	64	127	69	196	119	173	279	128	142
1944/45	66	170	72	146	117	250	303	115	143
1945/46	70	257	65	145	121	185	268	113	145
1946/47	59	176	112	107	72	203	-	137	124
1947/48	43	141	88	200	123	161	148	155	161
1948/49	48	260	81	166	100	198	-	105	159
1949/50	69	212	90	112	109	165	-	133	148
1950/51	58	215	81	195	152	202	-	114	174
1951/52	84	158	76	136	187	177	-	111	147
1952/53	73	219	89	172	121	131	-	144	151
1953/54	165	102	49	139	141	196	-	109	127
1954/55	30	2/ 220	39	113	184	168	-	99	176
		3/ 377							
1955/56	92	2/ 191	43	-	196	-	-	132	195
		3/ 302							
1956/57	57	2/ 149	188	163	120	287	-	123	153
		3/ 198							
1957/58	42	2/3/ 261	108	138	172	267	-	133	205
		4/ 294							
1958/59	75	2/3/ 136	176	176	181	301	-	121	163
1959/60	70	2/3/ 143	181	184	122	272	-	134	158

1/ Greater portion of crop harvested during the second year of the split year.
2/ MSI (Montserrat Sea Island).
3/ VH8 (hybrid variety).
4/ VH10 (hybrid variety)

Source: Annual Reports of the West Indian Sea Island Cotton Association, Inc.

Table 14c

Sea island cotton: Total lint production, by territories, 1939/40 through 1959/60

Year 1/	Anguilla	Antigua	Barbados	Montserrat	Nevis	St. Kitts	St. Lucia	St. Vincent	Total
	1,000 pounds								
1939/40	8	427	14	998	483	508	6	661	3,105
1940/41	19	665	46	1,176	558	283	6	611	3,372
1941/42	31	425	107	634	611	188	12	587	2,595
1942/43	17	75	57	644	200	223	3	363	1,582
1943/44	4	126	61	602	303	59	8	318	1,481
1944/45	5	192	23	551	315	258	7	267	1,618
1945/46	4	286	10	365	205	159	2	356	1,387
1946/47	2	88	14	284	101	194	-	219	902
1947/48	3	218	12	691	247	45	7	289	1,512
1948/49	5	925	58	634	310	231	-	344	2,507
1949/50	4	838	35	400	155	137	-	439	2,008
1950/51	3	873	15	619	333	139	-	343	2,325
1951/52	8	617	10	486	569	94	-	387	2,171
1952/53	4	285	18	340	413	47	-	374	1,481
1953/54	11	291	5	409	373	91	-	178	1,358
1954/55	2	1,267	2	283	566	78	-	241	2,429
1955/56	5	1,248	2	-	681	-	-	158	2,098
1956/57	3	526	1	245	244	180	-	186	1,385
1957/58	1	1,363	1	300	549	235	-	202	2,651
1958/59	2	378	1	414	388	191	-	264	1,638
1959/60	1	308	1	225	225	39	-	99	898

1/ Greater portion of crop harvested during the second year of the split year combination.

Source: Annual Reports of West Indian Sea Island Cotton Association, Inc.

Table 14d

Sea island cotton: Acreage, by territories, 1959/60 and projections

Year 1/	Anguilla	Antigua	Barbados	Montserrat	Nevis	St. Kitts	St. Vincent	Total
				Acres				
Actual 1959/60	17	2,149	6	1,221	1,854	127	738	6,112
1964/65	-	2,000	-	1,000	2,000	-	1,000	6,000
1969/70	-	1,200	-	1,000	1,500	-	750	4,450
1974/75	-	1,200	-	1,000	1,500	-	500	4,200

1/ Greater portion of crop harvested during the second year of the split year.

Table 14e

Sea island cotton: Yields of lint per acre, by territories, 1959/60 and projections

Year 1/	Anguilla	Antigua	Barbados	Montserrat	Nevis	St. Kitts	St. Vincent	Total
				Pounds of lint				
Actual 1959/60	70	143	181	184	122	272	134	158
1964/65	-	220	-	130	157	-	105	153
1969/70	-	247	-	120	164	-	103	158
1974/75	-	263	-	110	171	-	102	161

1/ Greater portion of crop harvested during the second year of the split year.

Table 14f

Sea island cotton: Total lint production, by territories, 1959/60 and projections

Year 1/	Anguilla	Antigua	Barbados	Montserrat	Nevis	St. Kitts	St. Vincent	Total	2/ Bales
				1,000 pounds					
Actual 1959/60	1	308	1	225	225	39	99	898	2,245
1964/65	-	440	-	130	314	-	105	989	2,473
1969/70	-	296	-	120	246	-	77	739	1,598
1974/75	-	316	-	110	257	-	51	734	1,585

1/ Greater portion of crop harvested during the second year of the split year.
2/ Bale = 400 pounds.

Table 15a

Citrus: Bearing and non-bearing tree population, by territories, for selected years, 1942 through 1958 1/

Year	Jamaica	Trinidad and Tobago	Dominica	St. Lucia	Grenada	Total
			Sweet oranges 1,000 trees			
1942	1,339.0	N.A.	N.A.	N.A.	N.A.	
1946	N.A.	372.6	90.5	17.7	7.7	
1950	1,986.0	N.A.	N.A.	N.A.	N.A.	
1956	2/ 3,500.0	303.5	N.A.	N.A.	N.A.	
1958	3,983.0	353.9	90.9	25.9	20.9	4,474.6
			Limes 1,000 trees			
1942	270.0	N.A.	N.A.	N.A.	N.A.	
1946	N.A.	475.6	322.7	55.7	59.6	
1950	523.0	N.A.	N.A.	N.A.	N.A.	
1956	650.0	N.A.	N.A.	N.A.	N. A.	
1958	702.0	N.A.	342.5	20.2	99.4	1,164.1
			Grapefruit 1,000 trees			
1942	471.0	N.A.	N.A.	N.A.	N.A.	
1946	N.A.	178.1	40.3	18.3	6.2	
1950	1,660.0	N.A.	N.A.	N.A.	N.A.	
1956	2/ 663.0	261.9	N.A.	N.A.	N.A.	
1958	992.0	266.2	74.2	10.8	13.7	1,356.9
			Other 1,000 trees			
1942	N.A.	N.A.	N.A.	N.A.	N.A.	
1946	N.A.	117.7	36.6	9.8	7.6	
1950	243.0	N.A.	N.A.	N.A.	N.A.	
1956	347.0	93.9	N.A.	N.A.	N.A.	
1958	332.0	85.4	N.A.	5.9	13.7	437.0

1/ Several estimates of acreage have been made, but they are not reconcilable.
2/ 1956-57 crop year tree population.
Source: Census data, citrus production reports, and data from agricultural surveys.

Table 15b

Citrus: Input to processing firms, by territories, 1961-62 and projections

Fruit	Jamaica				
	Weight per box	Production (1,000 boxes)			
		1961-62	1965-66	1970-71	1975-76
Oranges	90 lb.	1,500	2,400	2,600	3,000
Ortaniques	90 lb.	75	275	400	600
Grapefruit	80 lb.	850	975	1,100	1,300
Limes	90 lb.	190	250	210	215

Fruit	Trinidad and Tobago				
	Weight per box	Production (1,000 boxes)			
		1961-62	1965-66	1970-71	1975-76
Oranges	90 lb.	40	42	48	50
Ortaniques	-	-	-	-	-
Grapefruit	80 lb.	1,600	1,775	1,950	2,200
Limes	160 lb.	N.A.	N.A.	N.A.	N.A.

Fruit	Dominica				
	Weight per box	Production (1,000 boxes)			
		1961-62	1965-66	1970-71	1975-76
Oranges	90 lb.	550	700	770	850
Ortaniques	-	-	-	-	-
Grapefruit	80 lb.	110	140	160	170
Limes	160 lb.	170	175	190	240

Table 16

Coffee: Production, by territories, 1950 and 1955 through 1960, and projections

Territory	Estimates						
	1950	1955	1956	1957	1958	1959	1960
	1,000 pounds						
Jamaica	5,733	7,300	7,355	5,888	5,626	5,452	4,592
Trinidad and Tobago	1,763	4,008	4,121	4,799	5,099	5,290	5,802
British Guiana	N.A.	918	997	1,017	918	1,036	800

	Projections		
	1965	1970	1975
	1,000 pounds		
Jamaica	5,670	6,889	7,137
Trinidad and Tobago	6,929	8,334	9,739
British Guiana	1,200	1,450	1,800

Table 17a

Cocoa: Production of dry beans, by territories, 1950 and 1955 through 1960

Territory	1950	1955	1956	1957	1958	1959	1960
	1,000 pounds						
Jamaica	1,546	6,666	5,748	5,022	4,632	5,603	
Trinidad and Tobago	16,579	15,346	21,208	16,544	19,972	18,374	
Grenada	4,505	5,300	1,276	2,610	3,157	4,056	
St. Lucia and Dominica	880	1,137	115	1,255	944	1,296	
British Guiana	N.A.	120	827	116	132	181	

Source: Data and material developed during the study and other available data.

Table 17b

Cocoa: Scale of production, by territories, 1960 and projections

Year	Jamaica			Trinidad and Tobago			Grenada			St. Lucia and Dominica
	Total acreage	Bearing	Pre-bearing	Total acreage	Bearing	Pre-bearing	Total acreage	Bearing	Pre-bearing	Total acreage
	Acres									
1960	22,030	13,030	9,000	122,310	97,217	25,093	15,000	10,644	4,356	4,605
1965	49,030	22,030	27,000	122,310	97,215	25,095	15,000	9,020	5,980	4,986
1970	63,030	42,030	21,000	122,310	97,215	25,095	20,354	14,354	6,000	4,994
1975	63,030	63,030	Nil	122,310	122,310	Nil	20,354	20,354	Nil	5,100

Table 17c

Cocoa: Yields of dry beans per bearing acre, by territories, 1960 and projections

Year	Jamaica	Trinidad and Tobago	Grenada	St. Lucia and Dominica 1/
	Pounds			
1960	430	189	381	281
1965	404	215	415	290
1970	451	250	512	320
1975	2/ 440	241	582	343

1/ Yields for St. Lucia and Dominica are expressed as yield per acre, bearing and non-bearing.
2/ Fluctuations in yields are due to changes in the replanting rate.

Table 17d

Cocoa: Production of dry beans, by territories, 1960 and projections

Year	Jamaica	Trinidad and Tobago	Grenada	St. Lucia and Dominica	British Guiana
	1,000 pounds				
1960	5,603	18,374	4,056	1,296	181
1965	8,900	20,901	3,742	1,446	400
1970	18,955	24,304	7,352	1,598	520
1975	27,733	29,477	11,852	1,752	850

Table 18a

Copra: Production, by territories, 1950 through 1960

Territory	1950	1951	1952	1953	1954	1955	1956	1957	1958	1959	1960
	Tons										
Trinidad and Tobago	14,270	16,170	20,190	15,665	18,000	18,278	17,450	19,170	16,115	15,269	12,601
Barbados	-	-	-	-	-	-	-	-	-	-	-
Dominica	820	800	930	1,000	1,000	1,000	1,100	900	1,250	1,400	1,400
Grenada	400	520	770	535	540	1,058	229	450	460	454	380
Jamaica	7,110	5,960	3,410	5,293	7,500	10,252	10,731	10,883	10,926	12,178	14,757
Montserrat	N.A.	50	N.A.	N.A.	N.A	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
St. Kitts - Nevis	50	70	140	118	140	125	150	152	121	180	160
St. Lucia	2,000	2,410	2,600	2,990	3,230	3,101	2,714	2,953	3,420	2,770	3,759
St. Vincent	1,550	1,560	2,050	2,196	2,200	2,062	1,740	2,250	2,600	2,600	2,600
British Guiana	4,040	2,970	3,020	4,949	5,000	6,114	5,469	5,359	4,851	3,432	5,332
Total	30,240	30,510	33,110	32,746	37,610	41,990	39,583	42,117	39,743	38,283	40,989

Source: Data and material developed during the study and other available data.

Table 18b

Coconuts and copra: Scale and intensity of production, by territories, 1958 and projections

Territory	Number of trees (million)				Number of bearing trees (million)				Bearing trees as per cent of total trees			
	1958	1965	1970	1975	1958	1965	1970	1975	1958	1965	1970	1975
Jamaica	5.8	6.4	5.4	6.5	3.0	4.0	3.4	4.2	52	63	63	64
Trinidad and Tobago	5.8	6.3	6.8	6.9	4.3	4.6	4.7	4.8	74	73	70	70
Windward Islands and Leeward Islands	2.1	2.6	3.3	3.5	1.3	1.4	2.0	2.3	63	62	62	66
British Guiana	2.1	2.3	2.3	2.3	1.3	1.4	1.4	1.5	64	62	62	63
Total	15.8	17.6	17.8	19.2	9.9	11.4	11.5	12.8				

Territory	Nuts per bearing tree				Total nuts (million nuts)				Green nuts consumed (million nuts)			
	1958	1965	1970	1975	1958	1965	1970	1975	1958	1965	1970	1975
Jamaica	40	42	44	46	120.0	168.0	150.0	193.0	54.2	68.0	60.0	72.0
Trinidad and Tobago	30	32	33	34	129.0	147.2	155.1	163.2	32.0	30.0	34.0	41.0
Windward Islands and Leeward Islands	39	40	40	40	50.9	55.7	78.0	86.4	22.0	24.0	28.0	32.0
British Guiana	40	43	43	44	53.1	58.2	62.0	64.7	16.9	13.8	13.2	12.2
Total					353.0	429.1	445.1	507.3	125.1	135.8	135.2	157.2

Territory	Nuts available for copra (million nuts)				Trees per acre				Total acreage, 1,000 acres			
	1958	1965	1970	1975	1958	1965	1970	1975	1958	1965	1970	1975
Jamaica	65.8	100.0	90.0	121.0	60	62	55	63	94.0	103.2	98.2	103.1
Trinidad and Tobago	97.0	117.0	121.0	121.2	96	98	100	100	60.4	64.2	68.0	69.0
Windward Islands and Leeward Islands	36.9	39.7	58.0	64.4	74	85	87	87	28.3	30.4	38.3	40.0
British Guiana	36.2	45.0	48.8	52.5	60	62	62	62	34.5	36.7	37.4	37.6
Total	235.9	301.7	317.8	359.1					217.2	234.5	241.9	249.7

Territory	1,000 tons copra				Nuts per ton copra			
	1958	1965	1970	1975	1958	1965	1970	1975
Jamaica	11.0	16.3	14.8	19.5	5,981	6,100	6,100	6,200
Trinidad and Tobago	16.1	19.5	20.1	20.1	6,019	6,000	6,000	6,000
Windward Islands and Leeward Islands	6.6	7.1	10.0	11.1	5,600	5,600	5,800	5,800
British Guiana	4.8	6.0	6.5	7.0	7,500	7,500	7,500	7,500
Total	38.5	48.9	51.4	57.7				

Table 18c

Secondary processes, oils and fats products: Production, by territories, 1953 through 1959 1/

Territory and year	Edible oil	Edible fats	Laundry soap	Toilet soap
	Tons			
Jamaica:				
1953	3,983	2,227	4,845	771
1954	4,618	2,288	5,382	885
1955	4,891	2,297	5,675	911
1956	5,613	2,589	5,769	1,021
1957	6,353	2,676	6,013	1,173
1958	6,942	2,892	5,925	1,229
1959	7,117	3,053	6,162	1,335
Trinidad and Tobago:				
1953	6,680	1,229	4,642	9
1954	6,832	1,245	4,783	12
1955	7,677	1,925	4,128	4
1956	7,783	1,970	4,130	12
1957	8,242	2,169	3,891	16
1958	7,979	2,534	3,847	18
1959	7,628	2,458	3,592	23
Barbados:				
1960	2,023	1,604	1,453	-
Total, all territories:				
1959	19,789	7,658	13,100	1,358

1/ 1960 only for Barbados.

Source: Data and material developed during the study and other available data.

Table 18d

Secondary processes, oils and fats products: Production, by territories, projections

Territory and year	Edible oil	Edible fats	Laundry soap	Toilet soap
		Tons		
Jamaica:				
1965	10,000	3,900	8,750	2,002
1970	12,050	4,300	10,000	2,500
1975	13,500	4,900	10,175	2,850
Trinidad and Tobago:				
1965	10,200	3,000	4,300	40
1970	12,000	3,300	4,900	60
1975	13,050	3,600	5,100	100
Leeward Islands, Windward Islands and Barbados:				
1965	4,400	2,583	3,210	
1970	5,000	3,008	3,850	
1975	5,500	3,601	4,200	
British Guiana:				
1965	5,250	2,250	3,000	
1970	7,600	3,050	3,250	
1975	8,400	4,100	3,400	

Table 19

Vegetables, roots, pulses and nuts: Domestic supply, by territories, 1950, 1955 through 1960, and projections

Commodity and territory	Unit	1950	1955	1956	1957	1958	1959	1960	1965	1970	1975
Vegetables:											
Jamaica	1,000 lb.	63,000	73,000	81,000	88,000	87,902	90,000	91,000	100,000	120,000	130,000
Trinidad and Tobago	do.	25,000	20,500	22,750	25,400	31,077	33,500	33,850	35,000	40,000	46,000
Leeward Islands, Windward Islands and Barbados	do.	21,000	23,000	24,250	25,500	28,000	28,000	29,000	32,200	34,000	39,000
British Guiana	do.	12,500	13,200	13,700	13,250	13,838	14,000	13,989	15,000	18,000	19,000
T o t a l	do.	121,500	134,700	141,700	152,150	160,817	165,500	167,839	182,200	212,000	234,000
Roots and starchy vegetables:											
Jamaica	mil. lb.	450.0	403.0	395.0	392.0	379.6	390.0	395.0	400.0	400.0	400.0
Trinidad and Tobago	do.	70.0	74.2	68.4	67.5	89.1	90.0	90.0	90.0	90.0	90.0
Leeward Islands, Windward Islands and Barbados	do.	80.0	90.0	95.0	99.0	107.7	108.0	109.0	120.0	125.1	130.1
British Guiana	do.	20.0	20.0	21.2	23.5	30.2	30.2	30.2	34.2	36.2	40.2
T o t a l	do.	620.0	587.2	579.6	582.0	606.6	618.2	624.2	644.2	651.3	660.3
Peanuts and pulses (fresh):											
Jamaica	1,000 lb.	10,250	6,339	6,500	8,000	8,056	7,900	7,200	7,000	7,200	7,500
Trinidad and Tobago	do.	10,500	8,540	8,600	9,800	12,104	12,100	12,100	12,100	12,100	12,100
Leeward Islands, Windward Islands and Barbados	do.	1,950	2,250	1,970	2,500	2,620	2,650	2,700	2,720	2,735	2,750
British Guiana	do.	4,000	3,900	3,850	3,700	3,422	4,000	3,770	3,500	3,500	3,500
T o t a l	do.	26,700	21,029	20,920	24,000	26,202	26,650	25,750	25,320	25,535	25,850
Corn and corn meal:											
Jamaica	1,000 lb.	38,750	21,370	29,100	27,000	23,058	25,000	26,000	28,500	31,000	33,000
Trinidad and Tobago	do.	10,500	8,600	10,600	11,800	12,104	12,100	12,100	12,250	12,500	12,750
Leeward Islands, Windward Islands and Barbados	do.	1,950	2,250	1,970	2,000	2,124	2,320	2,200	2,250	2,250	2,250
British Guiana	do.	1,800	1,500	1,250	1,000	800	800	900	1,000	1,400	1,672
T o t a l	do.	53,000	33,720	42,920	41,800	38,086	40,220	41,200	44,000	47,150	49,672

Table 20

Tobacco and products: Production in Jamaica, 1961, and projections

Year	Tobacco leaf	Cigarettes	Cigars and cheroots
	1,000 pounds	millions	millions
1961	1,300	727	16.3
1965	1,360	750	17.5
1970	1,550	770	19.0
1975	1,800	800	21.5

Table 21a

Livestock numbers: Class estimates by territories for specified years

Class	Jamaica 1943	Trinidad and Tobago 1946	Barbados 1946	Antigua 1946	Dominica 1946	Grenada 1946	Montserrat 1946	St. Kitts-Nevis-Anguilla 1946	St. Lucia 1946	St. Vincent 1946	British Guiana 1952
	Census Years										
	Number										
Calves under 1 year		8,967	2,454	1,196	1,271	1,756	584	1,628	1,882	2,046	33,772
Females 1-2 years		5,953	2,343	894	904	1,340	350	1,287	1,855	1,099	65,521
Cows 2 years and over		15,517	6,700	2,508	2,580	3,864	985	2,999	4,856	3,426	
Oxen and steers 1 yr. and over		1,709	3,123	1,440	218	550	95	1,675	457	575	75,141
Bulls		5,642	450	386	725	812	126	483	1,333	595	
Total cattle	225,700	37,788	15,070	6,424	5,698	8,322	2,140	8,072	10,383	7,741	174,434
Goats		32,415	16,099	6,240	5,110	9,488	3,902	7,632	6,330	11,039	11,900
Pigs		36,606	24,367	2,702	6,094	9,361	2,018	6,828	9,823	9,369	25,200
Sheep		33,444	3,213	3,213	3,379	6,825	1,279	10,532	7,355	7,354	43,000
Poultry, all kinds		1,112,600	263,124	30,628	35,413	88,005	14,269	46,233	45,694	46,879	N.A.
	Comparison Years										
	Jamaica 1958	Trinidad and Tobago 1946	Barbados (no later figures available)	Antigua 1959	Dominica 1956	Grenada 1956 1/	Montserrat 1958	St. Kitts only 1959	St. Lucia 1957	St. Vincent 1957	British Guiana 1958
	Number										
Calves under 1 year		7,500									
Females 1-2 years		9,500		2/ 1,926	2/ 1,630	2/ 1,810	2/ 2,200	2/ 503	2/ 2,750	2/ 2,430	
Cows 2 years and over		12,900									
Oxen and steers 1 yr. and over		12,100		3/ 358	3/ 1,190	3/ 670	3/ 870	3/ 120	3/ 1,110	3/ 860	
Bulls				4/ 2,483	4/ 2,950	4/ 3,230	4/ 2,070	4/ 754	4/ 5,620	4/ 3,990	
Total cattle	299,900	42,000		4,767	5,770	5,710	5,140	1,377	9,480	7,280	172,000
Goats	268,700	27,450		3,429	4,670	4,310	4,350	N.A.	3,810	3,020	N.A.
Pigs	195,600	36,900		2,656	8,770	4,390	2,160	N.A.	13,170	4,380	N.A.
Sheep	13,200	4,390		3,725	3,540	2,370	3,610	N.A.	7,120	1,960	N.A.
Poultry, all kinds	1,463,900	N.A.		N.A.	37,690	63,200	17,710		42,310	30,040	N.A.
Cattle per 100 population	18.7	18.1		.8	9.8	6.4	41.7	5.6	11.0	9.1	4.9

1/ Excludes Grenadines.
2/ All cattle under two years old.
3/ All males two years and older.
4/ All females two years and older.

Source: Data and material developed during the study and other available data.

Table 21b

Livestock numbers: Class estimates, by territories, 1958 and projections

Year and class of livestock	Jamaica	Trinidad and Tobago	Windward Islands, Leeward Islands and Barbados	British Guiana
	1,000 head			
1958				
Cows 2 years and over	55.4	14.5	27.1	N.A.
All other cattle	244.5	27.5	22.1	N.A.
Total cattle	299.9	42.0	49.2	172.0
Pigs	195.6	36.9	42.4	25.2
Goats	268.7	27.5	34.0	11.9
Sheep	13.2	4.4	29.2	43.0
Poultry	1,463.1	N.A.	530.9	N.A.
1965				
Cows 2 years and over	58.0	20.0	31.0	50.0
All other cattle	322.0	32.0	23.0	170.0
Total cattle	380.0	52.0	54.0	210.0
Pigs	250.0	50.0	50.4	26.2
Goats	250.0	25.0	34.0	12.0
Sheep	20.0	5.0	30.0	44.0
Poultry	2,048.2	1,500.0	650.9	N.A.
1970				
Cows 2 years and over	65.0	21.0	40.0	56.0
All other cattle	410.0	47.0	38.0	198.0
Total cattle	475.0	58.0	78.0	254.0
Pigs	300.0	70.0	60.0	28.0
Goats	230.0	20.0	28.0	12.0
Sheep	35.0	5.0	33.0	44.0
Poultry	2,600.0	1,750.0	725.0	N.A.
1975				
Cows 2 years and over	80.0	22.0	43.0	66.0
All other cattle	542.0	36.0	49.0	206.0
Total cattle	622.0	58.0	92.0	272.0
Pigs	390.0	90.0	65.4	30.0
Goats	200.0	15.0	25.0	12.0
Sheep	40.0	5.0	37.0	44.0
Poultry	3,000.0	2,000.0	890.0	N.A.

Table 21c

Livestock products: Domestic supply, by territories, 1950, 1955 through 1960, and projections

Product and territory	1950	1955	1956	1957	1958	1959	1960	1965	1970	1975
	1,000 pounds									
Beef:										
Jamaica	11,727	17,926	19,792	22,394	21,952	23,000	24,800	32,500	39,000	46,000
Trinidad and Tobago	1,250	2,533	3,210	3,382	3,083	3,357	3,039	5,411	7,000	7,600
Leeward Islands, Windward Islands and Barbados	3,625	3,500	3,450	3,400	3,500	3,500	3,518	4,000	5,200	6,400
British Guiana	5,450	4,056	6,169	7,027	7,226	7,691	7,034	9,500	11,200	12,900
Total	22,052	28,015	32,621	36,203	35,761	37,548	38,391	51,411	62,400	72,900
Fresh milk:										
Jamaica	75,000	85,000	83,750	84,750	86,000	87,500	89,243	110,000	120,000	130,000
Trinidad and Tobago	27,500	35,990	26,455	26,250	28,400	31,250	38,125	41,000	43,000	45,000
Leeward Islands, Windward Islands and Barbados	36,500	31,250	32,750	35,500	36,750	38,000	38,750	40,000	41,250	42,500
British Guiana	20,000	23,550	23,750	24,375	24,669	26,890	28,480	31,200	35,000	39,000
Total	159,000	175,790	166,505	170,875	175,819	183,640	194,598	222,200	239,250	256,500
Eggs:										
Jamaica	2,700	3,000	4,200	8,475	13,868	15,518	16,500	19,500	24,000	32,744
Trinidad and Tobago	1,425	6,022	6,300	5,775	3,699	4,425	4,650	7,275	9,675	11,250
Leeward Islands, Windward Islands and Barbados	3,600	3,892	4,425	4,800	5,250	5,400	5,700	6,443	7,278	8,225
British Guiana	900	1,125	1,284	1,485	1,656	1,950	2,025	2,298	2,609	2,961
Total	8,625	14,039	16,209	20,535	24,473	27,293	28,875	35,516	43,562	55,180
Poultry meat:										
Jamaica	650	1,701	2,000	2,220	2,484	4,400	5,320	5,600	7,500	9,000
Trinidad and Tobago	500	2,350	3,200	5,200	6,223	6,000	6,330	6,600	6,250	7,000
Leeward Islands, Windward Islands and Barbados	122	380	425	520	600	850	1,097	1,250	1,350	1,400
British Guiana	250	250	250	320	420	430	450	600	700	805
Total	1,522	4,681	5,875	8,260	9,727	11,680	13,197	14,050	15,800	18,205
Pig meat:										
Jamaica	4,250	4,900	5,100	5,760	6,651	7,000	7,300	9,346	11,584	13,595
Trinidad and Tobago	800	890	900	1,000	1,000	1,100	1,200	1,900	3,873	5,350
Leeward Islands, Windward Islands and Barbados	500	640	720	640	650	700	730	780	820	1,041
British Guiana 1/	1,200	1,301	1,298	1,349	1,457	1,600	1,712	1,903	2,189	2,531
Total	6,750	7,731	8,018	7,749	9,758	10,400	10,942	13,929	18,466	22,517
Goat meat:										
Jamaica	7,500	8,000	7,200	6,300	5,238	5,200	5,100	5,000	4,900	4,900
Trinidad and Tobago	1,150	890	900	900	940	850	800	500	500	500
Leeward Islands, Windward Islands and Barbados	5,300	2,800	2,500	2,400	2,300	2,400	2,400	2,400	2,600	2,600
British Guiana 2/										
Total	13,950	11,690	10,600	9,600	8,478	8,450	8,300	7,900	8,000	8,000
Sheep, mutton:										
Jamaica	65	50	64	67	68	70	70	80	98	100
Trinidad and Tobago	200	120	90	70	56	54	54	50	50	50
Leeward Islands, Windward Islands and Barbados	70	65	64	62	60	63	65	70	80	80
British Guiana 2/										
Total	335	235	218	199	184	187	189	200	228	230

1/ Pork, goat and mutton.

2/ Included with pig meat.

Table 22a

Sugar: Supply and demand, by territories, 1958 and projections

Year and territory	Total production	Stocks and exports	Imports	Demand	
				Household	Manufacturing
	1,000 pounds				
1958					
Jamaica	745,864	609,917	547	130,466	6,028
Trinidad and Tobago	420,000	359,066	1,355	50,452	11,837
Leeward Islands, Windward Islands and Barbados	487,254	432,178	1,224	55,300	1,000
British Guiana	686,249	644,995	95	35,896	5,453
Total	2,339,367	2,046,156	3,221	272,114	24,318
1965					
Jamaica	901,098	735,431	667	159,342	6,992
Trinidad and Tobago	627,735	546,046	1,878	69,954	13,613
Leeward Islands, Windward Islands and Barbados	617,537	552,723	1,436	65,038	1,212
British Guiana	766,324	714,758	119	44,982	6,703
Total	2,912,694	2,548,958	4,100	339,316	28,520
1970					
Jamaica	1,113,763	921,756	766	182,827	9,946
Trinidad and Tobago	700,443	605,374	2,230	83,213	14,086
Leeward Islands, Windward Islands and Barbados	675,765	602,887	1,609	73,147	1,340
British Guiana	789,309	729,785	138	51,893	7,769
Total	3,279,280	2,859,802	4,743	391,080	33,141
1975					
Jamaica	1,311,639	1,095,902	861	205,386	11,212
Trinidad and Tobago	761,878	653,960	2,607	97,268	13,257
Leeward Islands, Windward Islands and Barbados	724,299	643,153	1,793	81,478	1,461
British Guiana	797,203	728,464	159	59,893	9,005
Total	3,595,019	3,121,479	5,420	444,025	34,935

Table 22b

Rice: Supply and demand, by territories, 1958 and projections

Year and territory	Total production	Stocks and exports	Imports	Feed, seed, etc.	Household demand
	1,000 pounds				
1958					
Jamaica	12,992	1,280	54,998	650	66,060
Trinidad and Tobago	20,100	7	62,142	1,005	81,230
Leeward Islands, Windward Islands and Barbados	983	-	33,159	-	34,142
British Guiana	217,594	108,435	-	30,457	78,702
Total	251,669	109,722	150,299	32,112	260,134
1965					
Jamaica	7,921	-	74,011	396	81,536
Trinidad and Tobago	26,038	-	77,091	1,302	101,827
Leeward Islands, Windward Islands and Barbados	-	-	40,457	-	40,457
British Guiana	403,030	266,321	-	40,303	96,406
Total	436,989	266,321	191,559	42,001	320,226
1970					
Jamaica	8,279	-	86,301	414	94,166
Trinidad and Tobago	32,818	-	87,082	1,641	118,259
Leeward Islands, Windward Islands and Barbados	-	-	45,371	-	45,371
British Guiana	481,602	322,443	-	48,160	110,999
Total	522,699	322,443	219,114	50,215	369,155
1975					
Jamaica	8,460	-	98,200	423	106,237
Trinidad and Tobago	37,722	-	102,980	1,886	138,816
Leeward Islands, Windward Islands and Barbados	-	-	51,134	-	51,134
British Guiana	514,508	335,069	-	51,541	127,988
Total	560,690	335,069	252,314	53,760	424,175

Table 22c

Bananas: Supply and demand, by territories, 1958 and projections

Year and territory	Total production	Exports	Local demand	Deficiency - Surplus +
	1,000 pounds			
1958				
Jamaica	469,425	298,800	170,625	0
Trinidad and Tobago	62,968	9,880	53,088	0
Leeward Islands, Windward Islands and Barbados	249,396	225,428	23,968	0
British Guiana	2,382	-	2,382	0
Total	784,171	534,108	250,063	0
1965				
Jamaica	555,000	353,920	219,569	-18,489
Trinidad and Tobago	79,399	9,632	77,137	- 7,370
Leeward Islands, Windward Islands and Barbados	346,360	312,928	29,303	+ 4,129
British Guiana	12,500	8,064	3,050	+ 1,386
Total	993,259	684,544	329,059	-20,344
1970				
Jamaica	597,000	378,000	258,908	-39,908
Trinidad and Tobago	83,690	9,856	92,657	-18,823
Leeward Islands, Windward Islands and Barbados	404,320	362,320	33,785	+8,215
British Guiana	16,250	10,752	3,528	+1,970
Total	1,101,260	760,928	388,878	-48,546
1975				
Jamaica	603,000	374,528	297,341	-68,869
Trinidad and Tobago	85,900	10,528	108,899	-33,527
Leeward Islands, Windward Islands and Barbados	442,960	395,808	38,349	+ 8,803
British Guiana	13,750	8,064	4,076	+ 1,610
Total	1,145,610	788,928	448,665	-91,983

Table 22d

Citrus: Supply and demand, by territories, 1958 and projections

Year and territory	Total production	Exports (fresh fruit equivalent)	Local demand
	1,000 pounds		
1958			
Jamaica	211,149	143,573	67,576
Trinidad and Tobago	136,380	105,320	31,060
Leeward Islands, Windward Islands and Barbados	100,000	87,148	12,852
British Guiana	10,097	-	10,097
Total	457,626	336,041	121,585
1965			
Jamaica	366,750	279,751	86,999
Trinidad and Tobago	155,780	110,649	45,131
Leeward Islands, Windward Islands and Barbados	150,000	134,287	15,713
British Guiana	13,000	negligible	12,925
Total	685,530	524,687	160,768
1970			
Jamaica	376,900	273,883	103,017
Trinidad and Tobago	160,320	106,110	54,210
Leeward Islands, Windward Islands and Barbados	173,000	154,884	18,116
British Guiana	15,000	negligible	14,953
Total	725,220	534,877	190,296
1975			
Jamaica	449,350	331,489	117,861
Trinidad and Tobago	180,500	116,787	63,713
Leeward Islands, Windward Islands and Barbados	300,000	279,436	20,564
British Guiana	17,500	226	17,274
Total	947,350	727,938	219,412

Table 22e

Copra: Supply and demand, by territories, 1958 and projections

Year and territory	Total production	Exports and stocks	Imports	Manufacturing demand
	Tons			
1958				
Jamaica	10,926	-	-	10,926
Trinidad and Tobago	16,115	710	-	15,405
Leeward Islands, Windward Islands and Barbados	7,851	-	210	8,661
British Guiana	4,851	-	500	5,351
Total	39,743	710	710	38,492
1965				
Jamaica	16,300	894	-	15,406
Trinidad and Tobago	19,500	244	-	19,256
Leeward Islands, Windward Islands and Barbados	7,100	-	1,140	8,240
British Guiana	6,000	-	368	6,368
Total	48,900	1,138	1,508	49,270
1970				
Jamaica	14,800	-	3,446	18,246
Trinidad and Tobago	20,100	-	2,391	22,491
Leeward Islands, Windward Islands and Barbados	10,000	-	734	10,634
British Guiana	6,500	-	2,543	9,043
Total	51,400	-	9,114	60,414
1975				
Jamaica	19,500	-	932	20,432
Trinidad and Tobago	20,100	-	4,394	24,494
Leeward Islands, Windward Islands and Barbados	11,100	340	-	10,760
British Guiana	7,000	-	3,167	10,167
Total	57,700	340	8,493	65,853

Table 22f

Edible oils and fats: Supply and demand, by territories, 1958 and projections

Year and territory	Total production	Exports and stocks	Imports	Household demand
	1,000 pounds			
1958				
Jamaica	22,028	-	2,542	24,570
Trinidad and Tobago	23,549	5,348	1,210	19,411
Leeward Islands, Windward Islands and Barbados	12,912	-	1,434	14,346
British Guiana	14,124	-	2,953	17,077
Total	72,613	5,348	8,139	75,404
1965				
Jamaica	31,136	3,067	3,237	31,306
Trinidad and Tobago	29,568	4,324	1,669	26,913
Leeward Islands, Windward Islands and Barbados	15,641	-	1,738	17,379
British Guiana	16,800	-	4,475	21,275
Total	93,145	7,391	11,119	96,873
1970				
Jamaica	36,624	3,599	3,809	36,834
Trinidad and Tobago	34,272	4,241	1,985	32,016
Leeward Islands, Windward Islands and Barbados	17,938	-	1,993	19,931
British Guiana	23,856	-	686	24,542
Total	112,690	7,840	8,473	113,323
1975				
Jamaica	41,216	3,574	4,341	41,983
Trinidad and Tobago	37,296	2,195	2,320	37,421
Leeward Islands, Windward Islands and Barbados	20,387	110	2,253	22,530
British Guiana	28,000	-	298	28,298
Total	126,899	5,879	9,212	130,232

Table 22g

Roots and starchy vegetables 1/: Supply and demand by territories, 1958 and projections

Year and territory	Total production	Exports	Imports	Household demand
	Million pounds			
1958				
Jamaica	379.6	negligible	12.6	392.2
Trinidad and Tobago	89.1	-	26.3	115.4
Leeward Islands, Windward Islands and Barbados	107.7	3.0	12.2	116.9
British Guiana	30.2	-	17.3	47.5
Total	606.6	3.0	68.4	672.0
1965				
Jamaica	400.0	-	36.2	436.2
Trinidad and Tobago	90.0	-	65.8	155.8
Leeward Islands, Windward Islands and Barbados	120.0	-	10.8	130.8
British Guiana	34.2	-	24.9	59.0
Total	644.2	-	137.6	781.8
1970				
Jamaica	400.0	-	71.1	471.1
Trinidad and Tobago	90.0	-	94.2	184.2
Leeward Islands, Windward Islands and Barbados	125.1	-	16.7	141.8
British Guiana	36.2	-	31.9	68.1
Total	651.3	-	213.9	865.2
1975				
Jamaica	400.0	-	108.8	508.8
Trinidad and Tobago	90.0	-	124.8	214.8
Leeward Islands, Windward Islands and Barbados	130.1	-	23.4	153.5
British Guiana	40.2	-	38.4	78.6
Total	660.3	-	295.4	955.7

1/ Includes eddos, bananas, yam, plantain, bloggers, Irish potato, sweet potato, breadfruit, etc.

Table 22h

Vegetables 1/: Supply and demand, by territories, 1958 and projections

Year and territory	Total production	Exports	Imports	Household demand
	1,000 pounds			
1958				
Jamaica	87,902	331	8,160	95,731
Trinidad and Tobago	31,077	-	8,923	40,000
Leeward Islands, Windward Islands and Barbados	28,000	2,500	287	25,787
British Guiana	13,838	-	906	14,744
Total	160,817	2,831	18,276	176,262
1965				
Jamaica	100,000	negligible	20,625	120,625
Trinidad and Tobago	35,000	-	21,332	56,332
Leeward Islands, Windward Islands and Barbados	32,200	2,200	785	30,785
British Guiana	15,000	-	3,619	18,619
Total	182,200	2,200	46,361	226,361
1970				
Jamaica	120,000	negligible	21,200	141,200
Trinidad and Tobago	40,000	-	27,253	67,253
Leeward Islands, Windward Islands and Barbados	34,000	2,000	2,968	34,968
British Guiana	18,000	-	3,500	21,500
Total	212,000	2,000	54,921	264,921
1975				
Jamaica	130,000	negligible	30,326	160,326
Trinidad and Tobago	46,000	-	32,784	78,784
Leeward Islands, Windward Islands and Barbados	39,000	2,000	2,247	39,247
British Guiana	19,000	-	9,744	28,744
Total	234,000	2,000	75,101	307,101

1/ Includes tomatoes, carrots, onions, garlic, green vegetables and salad vegetables, pumpkins, squash, etc.

Table 22i

Corn and corn meal: Supply and demand, by territories, 1958 and projections

Year and territory	Local production	Stock feed	Imports	Household demand
	1,000 pounds			
1958				
Jamaica	23,058	23,485	28,099	27,672
Trinidad and Tobago	12,104	6,840	10,730	15,994
Leeward Islands, Windward Islands and Barbados	2,124	275	7,046	8,895
British Guiana	800	672	393	521
Total	38,086	31,272	46,268	53,082
1965				
Jamaica	28,500	27,243	31,820	33,077
Trinidad and Tobago	12,250	7,200	15,000	20,050
Leeward Islands, Windward Islands and Barbados	2,250	300	8,363	10,313
British Guiana	1,000	700	367	667
Total	44,000	35,443	55,550	64,107
1970				
Jamaica	31,000	30,531	36,972	37,441
Trinidad and Tobago	12,500	7,800	20,657	25,357
Leeward Islands, Windward Islands and Barbados	2,250	330	9,549	11,469
British Guiana	1,400	725	47	722
Total	47,150	39,386	67,225	74,989
1975				
Jamaica	33,000	34,053	42,736	41,683
Trinidad and Tobago	12,750	8,200	25,005	29,555
Leeward Islands, Windward Islands and Barbados	2,250	360	10,782	12,672
British Guiana	1,672	780	-	892
Total	49,672	43,393	78,523	84,802

Table 22j

Pulses 1/: Supply and demand, by territories, 1958 and projections

Year and territory	Local production	Stock feed	Imports	Household demand
	1,000 pounds			
1958				
Jamaica	8,056	1,098	5,275	12,233
Trinidad and Tobago	12,104	425	14,643	26,322
Leeward Islands, Windward Islands and Barbados	2,620	1,418	3,925	5,127
British Guiana	3,422	700	6,015	8,737
Total	26,202	3,641	29,858	52,419
1965				
Jamaica	7,000	1,000	9,415	15,415
Trinidad and Tobago	12,100	400	23,046	34,746
Leeward Islands, Windward Islands and Barbados	2,720	1,500	4,900	6,120
British Guiana	3,500	750	8,198	10,948
Total	25,320	3,650	45,559	67,229
1970				
Jamaica	7,200	1,200	12,042	18,042
Trinidad and Tobago	12,100	500	29,248	40,848
Leeward Islands, Windward Islands and Barbados	2,735	1,550	5,767	6,952
British Guiana	3,500	755	9,906	12,631
Total	25,535	4,025	56,963	78,473
1975				
Jamaica	7,500	1,500	14,488	20,488
Trinidad and Tobago	12,100	500	35,940	47,540
Leeward Islands, Windward Islands and Barbados	2,750	1,600	6,653	7,803
British Guiana	3,500	800	11,877	14,577
Total	25,850	4,400	68,958	90,408

1/ Includes peanuts.

Table 22k

Beef: Supply and demand, by territories, 1958 and projections

Year and territory	Total production	Exports	Imports	Household demand
		1,000 pounds		
1958				
Jamaica	21,952	-	3,652	25,604
Trinidad and Tobago	3,083	-	5,934	9,017
Leeward Islands, Windward Islands and Barbados	3,500	negligible	2,441	5,941
British Guiana	7,226	negligible	106	7,332
Total	35,761	-	12,133	47,894
1965				
Jamaica	32,500	-	3,460	35,960
Trinidad and Tobago	5,411	-	9,489	14,900
Leeward Islands, Windward Islands and Barbados	4,000	-	3,723	7,723
British Guiana	9,500	-	38	9,538
Total	51,411	-	16,710	68,121
1970				
Jamaica	39,000	-	5,594	44,594
Trinidad and Tobago	7,000	-	11,349	18,349
Leeward Islands, Windward Islands and Barbados	5,200	-	4,043	9,243
British Guiana	11,200	155	-	11,045
Total	62,400	155	20,986	83,231
1975				
Jamaica	46,000	-	6,338	52,338
Trinidad and Tobago	7,600	-	14,206	21,806
Leeward Islands, Windward Islands and Barbados	6,400	-	4,374	10,774
British Guiana	12,900	130	-	12,770
Total	72,900	130	24,918	97,668

Table 22L

Other fresh meat 1/: Supply and demand, by territories, 1958 and projections

Year and territory	Total production	Exports	Imports	Household demand
	1,000 pounds			
1958				
Jamaica	11,957	-	965	12,922
Trinidad and Tobago	1,996	-	2,106	4,102
Leeward Islands, Windward Islands and Barbados	3,010	-	253	3,263
British Guiana	1,457	-	83	1,540
Total	18,420	-	3,407	21,827
1965				
Jamaica	14,426	-	2,921	17,347
Trinidad and Tobago	2,450	-	4,329	6,779
Leeward Islands, Windward Islands and Barbados	3,250	-	748	3,998
British Guiana	1,903	-	100	2,003
Total	22,029	-	8,098	30,127
1970				
Jamaica	16,582	-	4,396	20,978
Trinidad and Tobago	4,523	-	3,824	8,347
Leeward Islands, Windward Islands and Barbados	3,500	-	1,118	4,618
British Guiana	2,189	-	130	2,319
Total	26,794	-	9,468	36,262
1975				
Jamaica	18,595	-	5,706	24,301
Trinidad and Tobago	5,900	-	4,021	9,921
Leeward Islands, Windward Islands and Barbados	3,721	-	1,527	5,248
British Guiana	2,531	-	150	2,681
Total	30,747	-	11,404	42,151

1/ Goat, mutton and pork.

Table 22m

Poultry meat: Supply and demand, by territories, 1958 and projections

Year and territory	Total production	Exports	Imports	Household demand
		1,000 pounds		
1958				
Jamaica	2,484	-	1,341	3,825
Trinidad and Tobago	6,223	-	2,431	8,654
Leeward Islands, Windward Islands and Barbados	600	-	769	1,369
British Guiana	420	-	328	748
Total	9,727	-	4,869	14,596
1965				
Jamaica	5,600	-	177	5,777
Trinidad and Tobago	6,600	-	7,700	14,300
Leeward Islands, Windward Islands and Barbados	1,250	-	625	1,875
British Guiana	600	-	394	994
Total	14,050	-	8,896	22,946
1970				
Jamaica	7,500	95	-	7,405
Trinidad and Tobago	6,250	-	11,360	17,610
Leeward Islands, Windward Islands and Barbados	1,350	-	963	2,313
British Guiana	700	-	452	1,152
Total	15,800	95	12,775	28,480
1975				
Jamaica	9,000	153	-	8,847
Trinidad and Tobago	7,000	-	13,929	20,929
Leeward Islands, Windward Islands and Barbados	1,400	-	1,349	2,749
British Guiana	805	-	527	1,332
Total	18,205	153	15,805	33,857

Table 22n

Eggs: Supply and demand, by territories, 1958 and projections

Year and territory	Total production	Exports	Imports	Household demand
		1,000 pounds		
1958				
Jamaica	13,868	-	708	14,576
Trinidad and Tobago	3,699	-	566	4,265
Leeward Islands, Windward Islands and Barbados	5,250	-	89	5,339
British Guiana	1,656	-	30	1,686
Total	24,473	-	1,393	25,866
1965				
Jamaica	19,500	-	2,115	21,615
Trinidad and Tobago	7,275	-	524	7,799
Leeward Islands, Windward Islands and Barbados	6,443	-	776	7,219
British Guiana	2,298	47		2,251
Total	35,516	47	3,415	38,884
1970				
Jamaica	24,000	-	3,515	27,515
Trinidad and Tobago	9,675	-	101	9,776
Leeward Islands, Windward Islands and Barbados	7,278	-	1,562	8,840
British Guiana	2,609	-	4	2,613
Total	43,562	-	5,182	48,744
1975				
Jamaica	32,744	-	-	32,744
Trinidad and Tobago	11,250	-	452	11,702
Leeward Islands, Windward Islands and Barbados	8,225	-	2,236	10,461
British Guiana	2,961	-	65	3,026
Total	55,180	-	2,753	57,933

Table 22o

Fresh milk: Supply and demand, by territories 1958 and projections

Year and territory	Total production	Manufacturing demand	Household demand	Deficiency
	1,000 pounds			
1958				
Jamaica	86,000	64,739	46,693	1/ 25,432
Trinidad and Tobago	28,400	-	28,400	-
Leeward Islands, Windward Islands and Barbados	36,750	-	36,750	-
British Guiana	24,669	-	24,669	-
Total	175,819	64,739	136,512	25,432
1965				
Jamaica	110,000	84,842	63,153	1/ 37,995
Trinidad and Tobago	41,000	-	43,193	2/ 2,193
Leeward Islands, Windward Islands and Barbados	40,000	-	46,474	6,474
British Guiana	31,200	-	31,397	197
Total	222,200	84,842	184,217	46,859
1970				
Jamaica	120,000	97,661	76,818	1/ 54,479
Trinidad and Tobago	43,000	-	52,342	9,342
Leeward Islands, Windward Islands and Barbados	41,250	-	54,731	13,481
British Guiana	35,000	-	36,289	1,289
Total	239,250	97,661	220,180	78,591
1975				
Jamaica	130,000	109,879	89,172	1/ 69,051
Trinidad and Tobago	45,000	-	61,772	16,772
Leeward Islands, Windward Islands and Barbados	42,500	-	63,077	20,577
British Guiana	39,000	-	41,924	2,924
Total	256,500	109,879	255,945	109,324

1/ Condensery imports milk solids to make up for deficiency in local supplies.
2/ Deficiency not met by imports.

Table 22p

Milk products: Supply and demand, Jamaica, 1958 and projections

Years	Total production	Imports	Demand
	1,000 pounds		
1958	28,965	2,600	31,565
1965	37,961	1,000	38,961
1970	43,696	1,300	44,996
1975	49,163	1,600	50,763

Table 23a — Jamaica: Imports of selected agricultural

Commodities 2/	Unit of quantity	1945	1946	1947	1948	1949
1. MEAT AND MEAT PREPARATIONS	1,000 pounds	2,413	2,029	2,032	2,228	2,780
(i) Meat— Fresh, Chilled or Frozen	do.	320	23	41	394	543
(a) Bovine cattle	do.	-	-	2	230	351
(b) Sheep or lamb	do.	-	14	33	115	88
(c) Swine	do.		-	1	17	54
(d) Poultry	do.		1	5	6	13
(e) Other	do.		8	-	26	37
(ii) Meat, Dried, Salted, Smoked or Pickled	do.	1,994	1,683	1,159	1,226	1,268
(a) Bacon	do.	121	174	89	148	127
(b) Ham (all kinds)	do.	300	180	236	325	250
(c) Pork	do.	895	493	368	429	496
(d) Beef and veal	do.	677	836	466	323	395
(e) Other	do.	1	-	-	1	-
(iii) Meat Preparations	do.	100	108	39	45	131
(a) Sausages (all kinds)	do.	100	108	39	45	131
(iv) Meat in Air-Tight Containers	do.	-	216	793	564	839
(a) All other meats (n.e.s.)						
2. DAIRY PRODUCTS AND EGGS 3/	do.	5,841	4,968	5,169	5,058	3,173
(i) Milk (all kinds)	do.	4,987	4,015	3,798	3,440	1,579
(a) Tinned milk (unsweetened)	do.	960	1,019	943	1,417	934
(b) Tinned milk (sweetened)	do.	3,872	2,768	2,406	1,555	-
(c) Dried, skimmed or powdered	do.	155	228	449	468	645
(ii) Cheese	do.	349	291	371	628	694
(iii) Butter	do.	505	662	1,000	990	900
(iv) Eggs	(a) 1,000 doz.	-	8	4	20	33
	(b) 1,000 pounds	-	-	-	-	-
(v) Miscellaneous dairy products	do.	-	-	-	-	-
3. FISH AND FISH PREPARATIONS	do.	24,602	23,327	25,147	24,614	25,507
(a) Fresh, chilled, frozen	do.	9	-	47	17	30
(b) Dried, salted, smoked or pickled	do.	24,592	21,093	22,937	22,680	23,481
(c) Canned or preserved	do.	-	2,233	2,163	1,917	1,996
(d) Other preparations	do.	-	2	-	-	-
4. CEREALS AND CEREAL PREPARATIONS	do.	185,030	150,756	146,092	142,634	106,953
(a) Breakfast cereals	do.	499	122	1,819	2,087	2,103
(b) Oats	do.	1,561	1,722	3,848	1,408	1,723
(c) Wheat and wheat flour 4/	do.	172,647	127,638	114,263	100,409	83,461
(d) Maize (corn) milled and unmilled	do.	4,371	5,013	12,743	19,122	144
(e) Barley, milled and unmilled	do.	-	-	16	20	-
(f) Rice	do.	4,935	14,947	11,521	17,472	18,014
(g) Biscuits (sweetened and unsweetened)	do.	2	5	143	40	81
(h) Macaroni and spaghetti	do.	-		36	-	84
(i) Baking products (n.e.s.) 5/	do.	8	3	3	1	27
(j) Malt	do.	1,004	1,306	1,701	2,073	1,317
5. DECIDUOUS FRUITS	do.	-	-	-	-	-
(i) Fresh						
(a) Apples	do.	79	35	116	1	283
(b) Grapes	do.	-	-	-	-	-
(c) Other	do.	-	-	-	-	-
(ii) Dried Fruits	do.	517	130	443	116	628
(iii) Preserved or Tinned	(a) do.	-	261	553	888	59
	(b) 1,000 gals.					
6. VEGETABLES		-	-	-	-	-
(a) Irish potatoes	1,000 pounds		2,260	1,556	441	808
(b) Peas, beans and lentils	do.	143	205	194	203	239
(c) Tomatoes	do.	-	-	-	-	-
(d) Other fresh vegetables	do.		3	4	7	1
(e) Tinned and preserved	do.	308	166	842	189	931
7. BEVERAGES (Non-Alcoholic)	do.	439	-	702	656	516
(i) Cocoa	do.	233	538	533	474	394
(ii) Coffee	do.	-	-	-	-	-
(iii) Tea	do.	206	-	169	182	122
8. FEEDING STUFFS FOR ANIMALS	do.	2,490	3,729	3,343	2,027	5,106
(a) Grains and cereals	do.	107	180	17	-	-
(b) Prepared meals	do.	1,620	337	2,939	1,358	4,619
(c) Other	do.	763	3,212	387	669	487
9. EDIBLE OILS AND FATS	do.	104	68	609	95	181
10. TOBACCO	do.	932	1,191	1,462	1,351	958
(a) Tobacco (unmanufactured)	do.	909	1,136	1,379	1,333	928
(b) Tobacco (manufactured)	do.	23	55	83	18	30
11. SUGAR AND SUGAR PREPARATIONS	do.	82	117	1,078	716	1,116
(a) Molasses and syrup	do.	31	50	58	41	94
12. SOAP AND SOAP PREPARATIONS	do.	872	599	632	901	845
13. COTTON AND COTTON PIECE GOODS	(a) 1,000 sq.yds.	17,540	15,840	21,400	16,336	22,695
	(b) 1,000 pounds					
14. FERTILIZERS (manufactured)	1,000 tons	2	8	11	17	13
15. LEATHER	1,000 pounds	-	57	97	81	120

1/ See Appendix I, "Note on Import Data". 2/ Some group totals are not the sum of their respective subgroups. 3/ The quantity total of this group excludes eggs. 4/ Rye included up to 1953. 5/ Baking and counter flour included after 1953.

and related products within groups, and group totals, 1945 through 1960 1/

1950	1951	1952	1953	1954	1955	1956	1957	1958	1959	1960
3,542	5,243	3,927	4,958	6,267	7,966	11,996	12,957	16,223	11,824	12,111
728	1,705	1,432	1,703	2,118	2,669	3,947	4,170	7,627	8,284	6,591
456	1,330	993	1,127	1,686	2,034	2,976	2,722	4,369	3,433	2,428
121	176	183	217	285	288	360	450	965	665	751
66	57	56	115	43	113	130	135	337	320	330
17	27	58	83	79	203	311	633	1,341	2,028	1,490
68	115	142	161	25	31	170	230	615	1,838	1,592
1,419	1,843	1,612	2,720	2,538	2,999	5,328	5,013	4,713	1,594	5,251
320	173	274	152	262	278	366	331	264	342	409
497	387	435	439	270	289	322	459	500	437	511
250	694	655	1,446	878	1,023	1,604	2,046	2,129	435	3,075
352	589	248	680	1,082	1,317	2,859	2,091	1,788	1,342	1,138
-	-	-	3	46	92	177	86	32	38	118
23	18	20	48	66	115	161	187	269	272	355
23	18	20	48	66	115	161	187	269	272	355
1,372	1,677	863	487	1,545	2,183	2,559	3,587	3,614	4,069	4,077
4,376	6,255	5,988	3,748	6,473	17,943	22,478	21,423	18,603	18,113	19,841
1,606	3,189	3,325	1,229	1,759	13,564	15,438	12,726	8,583	10,660	10,377
935	1,064	617	445	7	223	25	6	12	14	14
4	1,239	1,755	19	860	9,030	13,442	6,396	2,363	22	-
667	886	953	765	892	4,311	1,971	6,324	6,208	10,624	10,363
1,164	1,262	1,106	944	1,784	1,292	2,587	3,135	2,211	2,025	1,858
1,606	1,370	1,541	1,575	2,146	1,843	2,794	3,239	4,101	4,884	4,323
										(a) 67
44	43	48	60	95	117	145	355	(b) 256	203	(b) 126
-	434	16	-	784	1,244	1,659	2,317	3,708	544	3,283
22,281	22,702	20,744	25,157	27,242	28,341	29,264	33,884	29,218	35,650	35,469
5	19	15	66	64	72	80	116	233	304	516
20,500	20,157	18,481	22,582	23,447	24,683	24,166	27,003	23,396	28,182	27,694
1,775	2,524	2,248	2,510	3,650	3,551	4,961	6,703	5,539	7,054	7,202
-	-	-	-	81	36	57	62	59	110	57
144,735	198,738	194,790	186,597	206,880	215,557	227,943	272,568	281,456	301,768	280,940
1,426	1,215	1,567	1,492	1,865	2,314	2,329	2,576	2,460	2,713	2,803
1,311	1,465	1,259	1,508	1,283	1,887	1,501	1,550	2,006	2,180	1,874
119,645	142,909	151,972	142,846	3,912	8,123	6,150	9,696	11,121	16,108	17,222
102	6,968	4,722	5,373	2,803	11,142	11,264	12,768	28,099	39,401	33,260
-	-	3	6	5	2	-	3	-	-	2
20,509	44,050	32,033	33,597	25,591	37,679	24,092	33,263	54,998	45,108	48,359
84	139	115	131	161	157	189	202	249	188	271
112	79	97	112	137	139	164	212	295	308	353
46	46	18	23	168,257	150,988	178,902	208,658	177,979	190,807	171,300
1,500	1,866	3,004	1,508	2,868	3,126	3,353	3,639	4,249	4,955	5,496
-	-	-	-	3,929	2,763	1,898	-	-	4,519	-
195	232	338	268	334	267	299	377	724	566	819
-	-	-	-	42	154	39	-	200	285	275
6	-	43	33	501	32	9	-	50	120	-
808	-	718	754	1,123	1,573	685	1,242	1,289	1,826	1,041
			(a) 8,592					(a) 2,390		(a) 1,533
344	-	621	(b) 15	1,929	737	866	1,691	(b) 131	1,722	(b) 195
1,750	5,005	3,852	4,116	7,195	8,830	9,610	11,353	20,088	20,543	-
965	3,067	2,446	2,806	5,628	6,311	6,752	6,870	12,714	12,982	7,943
22	428	96	119	-	1,152	1,569	2,683	4,269	4,286	5,700
-	-	-	-	540	39	65	75	135	131	9
29	27	17	26	235	138	112	173	486	652	-
734	1,483	1,293	1,164	792	1,190	1,112	1,552	2,484	2,492	2,763
497	443	669	519	613	592	539	371	378	457	498
297	240	469	282	354	297	207	18	-	5	-
18	16	23	47	35	41	68	68	53	127	79
182	187	177	190	224	254	264	285	325	325	419
3,550	3,949	4,223	6,086	10,633	13,103	13,475	21,562	34,278	37,016	42,934
1,059	398	615	675	3,167	964	570	758	2,241	1,964	2,325
2,491	3,551	3,608	5,411	7,466	11,337	12,309	20,168	30,908	33,952	35,963
					802	596	636	1,129	1,100	1,303
64	1,125	605	31	22	-	-	-	-	-	100
962	1,112	1,238	1,111	1,180	1,618	1,626	1,559	2,076	2,209	2,059
943	1,075	1,195	1,051	1,100	1,523	1,453	1,555	1,551	1,536	1,423
19	37	43	60	80	95	173	4	525	673	636
760	901	1,028	1,244	907	1,635	562	1,921	5,723	6,208	1,951
80	85	58	75	153	27	-	25	25	39	48
450	684	508	625	148	275	155	89	117	117	164
21,489	13,314	(a) 5,070	(a) 7,822	(a) 3,006	(a) 9,823	(a) 4,230	(a)10,838	(a) 9,411	(a) 7,646	(a)17,199
		(b) 1,423	(b) 913	(b) 905	(b) 761	(b) 897	(b) 957	(b) 904	(b) 684	
13	21	16	22	24	22	34	22	37	41	-
143	110	228	301	496	458	397	616	-	690	-

Source: Data and material developed during the study and other available data.

Table 23b

Trinidad and Tobago: Imports of

Commodities 2/	Unit of quantity	1949	1950	1951	1952
1 MEAT AND MEAT PREPARATIONS	1,000 pounds	9,370	10,946	10,726	10,865
(i) Meat — Fresh, Chilled or Frozen	do.	3,978	5,660	6,474	6,049
(a) Bovine cattle	do	2,466	4,217	4,820	4,142
(b) Sheep or lamb	do	684	433	507	636
(c) Swine	do	175	248	177	479
(d) Poultry	do	311	355	591	293
(e) Other	do.	342	407	379	499
(ii) Meat — Dried, Salted, Smoked or Pickled	do	4,064	4,340	3,558	4,033
(a) Bacon	do.			158	181
(b) Ham (all kinds)	do.	567	694	655	508
(c) Pork	do	2,888	2,584	2,243	2,728
(d) Beef and veal	do.	178	946	492	612
(e) Other	do	431	116	10	4
(iii) Meat Preparations	do.				
(a) Sausages (all kinds) 3/	do.				
(iv) Meat in Airtight Containers	do	1,372	946	694	778
(a) All other meats (n. e. s)	do.				5
2 DAIRY PRODUCTS AND EGGS 4/	do.	17,136	17,962	20,141	20,470
(i) Milk (all kinds)	do	14,066	13,864	16,239	16,263
(a) Tinned milk (unsweetened)	do.	-	-	1,169	1,294
(b) Tinned milk (sweetened)	do.	-	-	13,256	12,440
(c) Dried, skimmed or powdered	do.	-	-	1,787	2,457
(ii) Cheese	do	954	1,522	1,846	1,349
(iii) Butter	do	2,105	2,561	1,982	2,730
(iv) Eggs	1,000 doz	29	5/ 52	1,801	2,797
(v) Miscellaneous Dairy Products	1,000 pounds	11	15	74	128
3 FISH AND FISH PREPARATIONS	do	7,629	8,503	8,539	8,901
(a) Fresh, chilled, frozen	do.	180	308	153	270
(b) Dried, salted, smoked, pickled	do	6,384	6,694	6,881	7,301
(c) Canned or preserved	do.	1,065	1,500	1,496	1,329
(d) Other preparations	do	-	-	7	1
4 CEREALS AND CEREAL PREPARATIONS	do	134,957	146,721	143,945	159,627
(a) Breakfast cereals	do	265	978	1,333	1,017
(b) Oats	do	5,734	5,939	5,413	4,986
(c) Wheat and wheat flour	do.	95,659	107,834	101,637	118,681
(d) Maize (corn) milled and unmilled	do	2,231	806	1,119	1,722
(e) Barley	do	-	-	134	19
(f) Rice	do.	30,521	30,285	32,721	31,393
(g) Biscuits (sweetened and unsweetened)	do	93	113	169	128
(h) Macaroni and spaghetti	do.	-	-	312	420
(i) Bakery products (n. e. s.)	do.	5	4	6	5
(j) Malt	do.	448	762	1,101	1,257
5. DECIDUOUS FRUITS	do.	-	-	2,889	-
(i) Fresh					
(a) Apples	do.	5	333	470	495
(b) Grapes	do	-	-	15	100
(c) Other	do	1,213	817	987	1,461
(ii) Dried	do.	477	970	546	598
(iii) Preserved or Tinned	(a) do	691	888	871	(a) 632
	(b) 1,000 gallons				(b) 30
6 VEGETABLES	1,000 pounds			29,406	31,648
(a) Irish potatoes	do.	18,517	16,748	18,300	19,453
(b) Peas, beans, lentils	do.	4,539	7,364	8,247	8,750
(c) Tomatoes	do.	-	-	169	187
(d) Other fresh vegetables	do	-	-	1,914	2,533
(e) Tinned and preserved	do	-	1,024	776	725
7. BEVERAGES (Non-Alcoholic)	do	-	-	1,236	1,946
(i) Cocoa	do.	-	-	729	1,492
(ii) Coffee	do	4,032	2,568	85	79
(iii) Tea	do.	389	356	422	375
8. FEEDING STUFFS FOR ANIMALS	do	16,858	12,022	9,921	15,194
(a) Grains and cereals	do.	1,362	3,719	3,005	5,537
(b) Prepared meals	do	14,408	7,036	6,229	9,374
(c) Other	do	1,088	1,267	687	283
9 EDIBLE OILS AND FATS	do	1	-	66	-
10. TOBACCO	do	1,161	1,458	1,361	1,415
(a) Tobacco (unmanufactured)	do.	1,064	1,342	1,324	1,385
(b) Tobacco (manufactured)	do.	97	116	37	30
11. SUGAR AND SUGAR PREPARATIONS	do	45	109	619	602
(a) Molasses and syrup	do.	16	-	568	12
12. SOAP AND SOAP PREPARATIONS	do.	1,320	1,054	1,379	1,102
13. COTTON PIECE GOODS	1,000 sq yds	7,330	13,740	9,321	12,909
14. FERTILIZERS (manufactured)	1,000 tons	7	6	12	14
15. LEATHER	1,000 pounds	82	75	126	94

1/ See Appendix I. "Note on Import Data". 2/ Some group totals are not the sum of their respective subgroups. 3/ Included in Group (iv) Meat in Airtight Containers up to 1951. 4/ The quantity of this Group excludes eggs. 5/ '000 Great Hundred.

selected agricultural and related products within groups, and group totals, 1949 through 1960 1/

1953	1954	1955	1956	1957	1958	1959	1960
10,808	14,432	15,347	18,056	17,935	21,944	22,083	23,909
6,016	7,268	8,167	10,538	10,571	13,450	13,796	14,413
3,886	4,997	4,670	6,138	5,933	7,190	5,769	7,005
822	755	723	923	752	825	1,208	958
423	489	605	712	679	962	1,621	1,073
296	204	1,495	2,025	2,432	3,355	4,065	4,663
589	823	674	740	774	1,118	1,133	714
3,982	4,931	5,114	5,444	5,369	5,562	5,592	6,659
197	235	263	225	245	283	304	295
716	851	842	1,116	1,192	1,280	1,413	1,642
2,237	2,836	2,923	3,026	2,963	2,955	3,067	3,812
828	997	1,080	1,076	969	1,041	806	859
4	12	6	1	-	-	2	54
	1,084	1,059	994	818	1,038	1,090	1,092
306	1,084	1,059	994	818	1,038	1,090	1,092
	1,143	991	1,069	1,173	1,889	1,600	1,674
5	6	16	11	5	5	5	71
19,360	26,787	24,893	27,074	26,012	28,130	32,344	34,080
15,681	22,891	20,336	22,131	21,311	22,709	26,326	27,584
1,590	1,619	1,850	1,988	2,638	956	3,631	4,321
11,470	17,103	13,158	14,147	13,031	14,825	14,104	14,904
2,621	4,169	5,328	5,996	5,702	6,928	8,501	8,359
1,668	1,560	1,916	1,933	1,871	2,056	2,389	2,143
1,918	2,179	2,233	2,668	2,370	3,013	2,976	3,531
1,870	1,817	2,494	2,958	520	566	535	512
93	157	408	342	400	352	653	822
7,945	8,772	8,452	8,674	7,995	8,283	8,669	8,107
113	139	145	90	192	135	197	146
6,497	6,998	6,932	6,859	6,416	6,510	6,688	6,297
1,334	1,634	1,374	1,625	1,386	1,635	1,781	1,660
1	-	1	1	2	3	4	4
170,289	165,242	177,097	166,306	194,871	204,492	215,729	217,207
1,122	1,386	1,619	2,229	1,009	1,655	1,934	2,659
4,583	5,364	4,789	4,304	3,572	3,846	4,448	3,234
118,874	120,000	119,160	111,743	117,908	123,596	130,292	125,922
562	4,590	8,284	4,827	11,027	10,344	22,283	20,710
37	5	37	4	115	114	116	123
43,972	32,162	41,389	41,324	59,343	62,185	53,353	60,438
216	296	320	474	425	373	465	589
323	323	368	449	331	450	530	680
18	25	18	41	63	56	67	73
588	1,093	1,113	912	1,079	1,874	2,245	3,459
-	4,465	-	-	3,742	6,020	8,798	9,485
509	485	797	895	1,139	2,214	2,767	2,893
127	343	-	-	1,109	363	486	422
1,766	2,086	1,292	154	39	137	1,072	1,156
971	676	-	-	899	1,194	1,341	1,146
(a) 664	875	-	-	556	2,112	3,132	3,868
(b) 1							
30,814	32,808	38,117	36,558	38,554	39,704	41,791	41,623
18,418	20,363	24,003	22,930	23,384	24,036	23,883	23,134
8,423	9,212	10,847	9,810	11,394	11,450	13,351	12,254
159	172	240	244	184	205	168	152
3,157	2,296	1,748	2,123	2,065	2,685	2,502	2,929
657	765	1,279	1,441	1,527	1,328	1,887	3,154
1,279	1,190	1,232	1,170	1,123	1,061	1,241	1,492
752	667	748	642	644	547	696	879
106	82	89	85	93	100	115	143
421	441	395	443	386	414	430	470
12,608	18,841	27,243	31,309	33,684	37,929	38,600	17,114
2,126	1,317	-	-	7,361	7,846	8,874	2,189
9,561	16,570	-	-	23,836	27,448	25,859	8,562
921	954	-	-	2,487	2,635	3,867	6,363
19	334	245	99	-	18	-	14
1,485	1,597	1,641	1,745	1,691	1,820	1,917	1,997
1,455	1,566	1,604	1,702	1,613	1,751	1,824	1,902
30	31	37	43	78	69	93	95
657	676	1,154	1,805	601	1,048	1,598	992
4	12	20	13	-	690	380	4
1,064	1,240	1,622	1,991	1,894	1,918	1,844	2,051
11,582	9,145	-	9,637	11,470	13,739	11,166	13,537
11	17	18	24	20	20	21	7
120	129	156	160	74	260	113	173

Source: Data and material developed during the study and other available data.

Table 23c Barbados: Imports of selected agricultural and related

Commodities 2/	Unit of quantity	1946	1947	1948	1949
1. MEAT AND MEAT PREPARATIONS	1,000 pounds	4,692	5,175	4,887	5,095
(i) Meat — Fresh, Chilled or Frozen	do.	389	438	651	759
(a) Bovine cattle	do.	279	319	496	631
(b) Sheep or lamb	do.	46	80	92	55
(c) Swine	do.	•35	-	-	-
(d) Poultry	do	29	39	63	73
(e) Other	do.	-	-	-	-
(ii) Meat — Dried, Salted, Smoked or Pickled	do	4,103	4,214	3,692	3,943
(a) Bacon	do.	259	240	164	181
(b) Ham (all kinds)	do				
(c) Pork	do.	3,196	3,518	3,362	3,552
(d) Beef and Veal	do.	648	456	166	210
(e) Other	do.	-	-	-	-
(iii) Meat Preparations	do	-	-	-	-
(a) Sausages (all kinds) 3/	do	-	-	-	-
(iv) Meat in Airtight Containers	do.	200	523	544	394
(a) All other meats (n. e. s.)	do	-	-	-	-
2. DAIRY PRODUCTS AND EGGS 4/	do.	2,023	2,539	2,271	3,254
(i) Milk (all kinds)	do.	1,324	1,925	1,685	2,399
(a) Tinned (unsweetened)	do.	-	-	-	-
(b) Tinned (sweetened)	do.	-	-	-	-
(c) Dried, skimmed or powdered	do.	-	-	-	-
(ii) Cheese	do	73	84	135	134
(iii) Butter	do.	626	530	451	721
(iv) Eggs	1,000 doz.	-	-	-	-
(v) Miscellaneous Dairy Products	1,000 pounds	-	-	-	-
3. FISH AND FISH PREPARATIONS	do	-	-	-	-
(a) Fresh, chilled, frozen	do	-	-	-	-
(b) Dried, salted, smoked,	(a) do.	(a) 346	(a) 279	(a) 47	(a) 127
pickled,	(b) 1,000 quintals	(b) 2,145	(b) 22	(b) 27	(b) 28
(c) Canned or preserved fish	1,000 pounds	-	-	-	-
(d) Other preparations	do.	-	-	-	-
4. CEREALS AND CEREAL PREPARATIONS	do.	48,609	49,555	52,035	51,784
(a) Breakfast cereals 5/	do.	-	-	-	-
(b) Oats	do.	4,550	6,177	5,632	6,062
(c) Wheat and wheat flour	do.	22,474	23,504	24,710	22,539
(d) Maize (corn) grain and meal	do.	5,454	6,349	6,692	5,244
(e) Barley	do.	43	27	74	190
(f) Rice	do.	16,059	13,432	14,792	17,685
(g) Biscuits (sweetened and unsweetened)	do.	29	68	135	65
(h) Macaroni and spaghetti 6/	do.	-	-	-	-
5. DECIDUOUS FRUITS	do.	-	-	-	-
6. VEGETABLES	do.	7,014	6,937	5,381	4,241
(a) Irish potatoes	do.	5,322	4,673	3,504	1,589
(b) Peas, beans and lentils	do.	1,463	2,079	1,605	2,381
(c) Other fresh vegetables	do.	58	89	176	152
(d) Tinned and preserved	do.	171	96	96	119
7 BEVERAGES (Non-Alcoholic)	do.	813	800	596	652
(i) Cocoa	do.	183	181	215	458
(ii) Coffee	do.	471	274	183	56
(iii) Tea	do.	159	345	198	138
8. FEEDING STUFFS FOR ANIMALS	do.	14,447	18,496	19,130	18,529
(a) Grains and cereals	do.	4,716	4,809	5,042	4,927
(b) Prepared meals	do.	3,467	5,492	6,902	7,956
(c) Other	do.	6,264	8,195	7,186	5,646
9. EDIBLE OILS AND FATS	(a) do.	(a) 402	(a) 51	-	-
	(b) 1,000 gallons	(b) 24	(b) 88	(b) 42	(b) 61
10. TOBACCO	1,000 pounds	269	275	249	268
(a) Tobacco (unmanufactured)	do.	240	245	232	237
(b) Tobacco (manufactured)	do.	29	30	17	31
11. SUGAR AND SUGAR PREPARATIONS	do.	2	-	59	24
(a) Molasses and syrup	1,000 gallons	-	-	176	-
12. SOAP AND SOAP PREPARATIONS	1,000 pounds	37	41	19	79
13. COTTON PIECE GOODS	1,000 sq. yds.	2,362	2,120	2,170	3,126
14. FERTILIZERS (manufactured)	1,000 tons	10	8	10	12
15. LEATHER	1,000 pounds	83	129	56	49

1/ See Appendix I, "Note on Import Data". 2/ Some group totals are not the sum of their respective subgroups. 3/ Included in Group (iv) Meat in Airtight Containers up to 1954. 4/ The quantity totals of this group exclude eggs. 5/ Included in Oats up to 1954.

products within groups, and group totals, 1946 through 1958 1/

1950	1951	1952	1953	1954	1955	1956	1957	1958
5,780	6,485	7,056	5,272	7,880	-	-	9,768	10,162
1,357	1,220	1,534	964	1,752	-	2,031	2,669	3,233
1,052	1,069	1,343	859	1,492	-	-	2,207	2,270
269	90	134	63	182	-	-	157	177
-	6	6	7	11	-	-	23	20
36	55	51	35	29	-	-	179	656
-	-	-	-	38	-	-	103	110
3,871	4,863	4,767	3,830	4,983	-	-	5,618	5,591
250	260	204	201	{ 51 193	} 213	318	{ 75 502	121 578
3,377	4,421	4,384	3,173	3,759	3,840	4,060	3,987	4,195
244	182	179	456	980	634	548	1,056	696
-	-	-	-	-	-	-	2	1
-	-	-	-	84	-	-	138	109
-	-	-	-	84	-	-	138	109
552	402	755	478	1,051	987	914	1,314	1,216
-	-	-	-	9	-	-	25	13
2,986	3,809	4,137	4,211	5,561	4,871	6,773	7,029	8,831
2,007	2,699	2,590	3,207	3,959	4,179	5,712	5,382	6,894
-	-	-	-	} 3,450	3,733	5,289	4,967	6,228
-	-	-	-					
-	-	-	-	509	446	423	711	743
253	382	689	343	559	-	-	621	665
726	728	858	661	1,014	692	1,061	898	1,025
-	-	-	-	141	-	-	242	13
-	-	-	-	29	-	-	128	247
3,113	3,078	3,278	2,949	4,006	-	-	4,238	3,761
-	-	-	-	10	-	-	20	20
3,113	2,988	3,174	2,931	2,973	2,960	2,920	2,922	2,538
-	-	-	-	802	713	768	1,289	1,147
-	90	103	18	222	-	-	6	55
53,082	49,564	48,528	51,888	45,735	-	-	50,490	32,532
-	-	-	-	436	-	-	415	493
6,104	5,857	2,901	4,505	3,378	-	-	2,096	2,680
22,487	22,043	23,925	21,013	21,002	23,657	23,629	22,537	24,835
4,568	3,650	4,588	4,816	4,766	4,660	4,920	5,703	5,214
147	180	171	133	119	-	-	161	154
19,691	17,718	16,914	21,378	15,810	19,676	17,634	19,003	20,920
85	116	28	42	55	-	-	102	141
-	-	-	-	169	-	-	472	447
-	-	-	-	-	-	-	-	-
4,313	-	-	8,034	10,741	-	-	11,859	14,029
2,854	4,401	7,036	5,861	8,196	8,380	8,140	8,271	9,486
1,318	1,222	1,644	1,984	2,052	2,482	2,691	2,619	2,916
61	98	79	88	62	-	-	298	377
80	-	-	101	431	-	-	671	750
712	1,292	688	598	589	596	539	720	642
293	305	208	255	263	239	192	199	209
120	265	164	186	89	99	134	297	165
299	232	244	157	237	258	213	224	268
21,461	23,194	30,999	-	39,583	35,580	35,092	31,996	37,045
5,397	6,220	7,859	5,371	5,345	-	8,057	6,717	6,550
8,391	7,337	8,380	8,855	22,864	-	9,405	25,279	30,495
7,673	9,637	14,760	-	11,374	-	17,530	-	-
-	-	-	-	-	(a) 2,025	-	-	-
(b) 126	(b) 107	(b) 137	(b) 104	158	(b) 55	(b) 2,028	(b) 1,228	(b) 2,266
297	301	316	413	326	323	283	381	364
261	267	282	386	295	295	252	328	303
36	34	34	27	31	28	31	53	61
20	72	42	56	776	-	-	1,192	897
-	-	-	13	-	-	-	-	-
22	151	118	62	296	-	-	304	389
2,329	2,595	2,446	2,360	1,981	-	-	3,323	3,908
12	16	14	12	15	14	17	24	13
60	77	51	49	48	49	58	60	82

6/ Included in Wheat and Wheat Flour up to 1954.
Source: Data and material developed during the study and other available data.

Table

British Guiana: Imports of selected agricultural and related

Commodities	Unit of quantity	1945	1946	1947	1948	1949
1. MEAT AND MEAT PREPARATIONS	1,000 pounds	1,857	2,412	3,412	1,971	2,630
(i) Meat—Fresh, Chilled or Frozen	do.					
(a) Bovine cattle	do.					
(b) Sheep or lamb	do.	22	29	27	36	45
(c) Swine	do.					
(d) Poultry	do.					
(e) Other	do.					
(ii) Dried, Salted, Smoked or Pickled	do.	1,664	2,093	3,019	1,320	2,062
(a) Bacon 3/	do.	-	-	-	-	-
(b) Ham (all kinds)	do.	-	-	-	-	-
(c) Pork	do.					
(d) Beef and veal	do.	1,664	2,093	3,019	1,320	2,062
(iii) Meat Preparations	do.	-	-	-	-	-
(a) Sausages (all kinds) 3/	do.	-	-	-	-	-
(iv) Meat in Airtight Containers	do.	49	117	248	492	418
(a) All other meats (n.e.s.)	do.	122	173	118	123	105
2. DAIRY PRODUCTS AND EGGS 4/	do.	4,502	4,783	5,456	4,980	4,551
(i) Milk (all kinds)	do.	3,638	3,513	4,187	3,602	3,135
(a) Tinned milk (unsweetened)	do.	376	705	1,026	743	1,394
(b) Tinned milk (sweetened)	do.	3,262	2,808	3,161	2,859	1,737
(c) Dried, skimmed or powdered	do.	-	-	1	-	4
(ii) Cheese	do.	200	380	394	471	511
(iii) Butter	do.	544	785	875	895	905
(iv) Eggs	1,000 doz.	-	-	-	-	-
(v) Miscellaneous Dairy Products	1,000 pounds	120	105	-	12	-
3. FISH AND FISH PREPARATIONS	do.	3,996	4,163	4,707	4,640	4,715
(a) Fresh, chilled, frozen	do.	2	3	-	2	3
(b) Dried, salted, smoked, pickled	do.	3,365	3,557	3,946	4,182	3,792
(c) Canned or preserved	do.	629	604	761	456	920
4. CEREALS AND CEREAL PREPARATIONS	do.	48,872	34,397	40,681	44,985	42,889
(a) Breakfast cereals 6/	do.	-	-	-	-	-
(b) Oats	do.	2,203	2,105	2,129	1,596	1,904
(c) Wheat and wheat flour	do.	45,531	31,654	37,574	42,512	40,141
(d) Maize (corn) grain and meal	do.	862	333	529	333	309
(e) Barley (milled and unmilled)	do.	252	249	367	387	313
(f) Biscuits (sweetened and unsweetened)	do.	23	56	81	155	222
(g) Macaroni and spaghetti	do.	-	-	-	-	-
(h) Baking products (n.e.s.)	do.	-	-	-	-	-
(i) Malt	do.	-	-	-	-	-
5. DECIDUOUS FRUITS	do.	-	520	994	457	969
(i) Fresh						
(a) Apples	do.	-	79	327	56	38
(b) Grapes	do.	-	-	-	-	-
(c) Other	do.	-	14	58	3	22
(ii) Dried Fruits	do.	112	269	356	248	748
(iii) Tinned or Preserved	(a) 1,000 liq. gals.	-	-	-	-	-
	(b) 1,000 pounds	186	158	253	150	161
6. VEGETABLES	do.	12,359	144,011	15,261	17,020	25,756
(a) Irish potatoes	do.	7,377	7,389	8,527	10,147	15,282
(b) Peas, beans and lentils	do.	2,836	3,996	3,898	3,366	3,840
(c) Tomatoes	do.	-	-	-	-	-
(d) Other fresh vegetables	do.	2,015	2,347	2,356	3,141	6,281
(e) Tinned and preserved	do.	131	279	480	366	353
7. BEVERAGES (Non-Alcoholic)	do.	687	1,046	775	442	417
(i) Cocoa	do.	172	327	294	264	220
(ii) Coffee	do.	432	582	251	21	65
(iii) Tea	do.	83	137	230	157	132
8. FEEDING STUFFS FOR ANIMALS	do.	2,580	716	1,308	987	2,009
(a) Grains and cereals	do.	222	401	588	330	157
(b) Prepared meals	do.	2,306	315	718	182	1,339
(c) Other	do.	52	-	1	10	509
9. EDIBLE OILS AND FATS	do.	569	434	362	566	712
10. TOBACCO	do.	488	594	742	641	599
(a) Tobacco (unmanufactured)	do.	480	576	729	628	586
(b) Tobacco (manufactured)	do.	8	18	13	13	13
11. SUGAR AND SUGAR PREPARATIONS	do.	23	24	55	23	51
12. SOAP AND SOAP PREPARATIONS	do.	842	570	839	1,444	739
13. COTTON PIECE GOODS	1,000 sq.yds.	5,026	4,874	8,885	6,825	5,791
14. FERTILIZERS (manufactured)	1,000 tons	11	11	10	15	16
15. LEATHER	1,000 pounds	10	12	4	10	22

1/ See Appendix I, "Note on Import Data". 2/ Some group totals are not the sum of their respective sub-groups. 3/ Included in Group (iv) Meat in Airtight Containers and (iv) (a) All Other Meats (n.e.s.) up to 1952. 4/ The quantity total of this group excludes eggs.

products within groups, and group totals. 1945-60 1/

1950	1951	1952	1953	1954	1955	1956	1957	1958	1959	1960
2,294	2,350	2,785	2,534	3,495	3,388	3,735	3,013	2,449	3,264	3,633
			81	372	650	465	239	265	144	245
			58	177	206	214	35	35	13	14
			1	104	84	95	61	68	66	83
-	-	127	-	-	13	1	-	1	11	24
			8	73	328	139	119	147	40	104
			15	18	19	16	24	14	14	20
1,715	1,940	2,033	2,040	2,504	2,126	2,532	2,094	1,516	2,307	2,468
-	-	-	54	81	52	39	35	40	81	77
-	-	-	147	112	155	234	205	231	218	279
758	1,114	1,213	939	1,219	761	1,112	799	1,245	1,154	1,102
957	826	820	900	1,092	1,158	1,147	1,055	-	854	1,010
-	-	-	80	140	137	161	154	164	168	224
-	-	-	80	140	137	161	154	164	168	224
410	237	519	332	479	475	577	526	504	645	696
-	-	106	-	-	-	-	-	-	-	-
6,406	6,168	6,048	6,374	8,503	5/ 10,552	12,470	12,786	14,199	13,458	14,956
4,915	4,687	4,094	5,254	6,901	9,296	10,252	10,638	11,830	11,530	12,504
1,875	1,650	1,485	1,307	2,019	4,228	4,787	5,569	6,128	5,998	6,843
3,040	3,037	2,603	3,321	3,841	4,297	4,245	3,820	4,218	3,459	3,525
-	-	6	626	1,041	774	1,220	1,249	1,483	2,072	2,136
636	516	913	660	730	-	908	811	946	688	916
855	965	1,022	447	859	720	744	668	775	727	929
-	-	-	4	12	8	1	120	225	232	110
-	-	19	13	13	521	563	679	648	513	607
4,832	4,756	5,624	4,958	4,703	6,051	5,752	5,281	5,952	5,685	6,406
-	-	5	20	32	34	32	31	38	40	105
3,849	3,932	4,465	3,774	3,490	4,678	4,328	3,991	4,940	4,402	4,822
983	824	1,154	1,164	1,181	1,340	1,393	1,260	1,275	1,243	1,479
53,543	45,162	54,334	51,773	62,229	61,443	58,410	64,248	62,757	64,919	64,643
-	-	-	50	57	133	233	248	947	248	303
2,013	1,128	1,905	1,930	2,426	2,368	2,459	2,372	2,275	2,293	2,078
50,244	42,909	51,411	48,868	58,122	57,381	53,711	59,279	56,936	60,107	59,442
617	473	358	177	835	747	1,025	956	393	266	597
492	440	473	476	487	563	462	514	456	570	568
177	212	186	178	204	154	420	182	119	126	191
-	-	-	82	87	85	80	101	120	112	122
-	-	-	10	12	12	21	22	20	21	128
-	-	-	-	-	-	-	575	1,491	1,177	1,214
-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	433	358	725	461	513
74	219	150	248	300	342	216	157	224	-	183
-	-	-	74	129	141	38	53	65	61	50
-	-	20	46	32	32					
401	537	380	448	322	593	512	536	528	-	491
-	-	28	30	42	64	82	63	97	-	121
206	305	240	245	305	327	380	413	414	-	833
25,705	23,261	24,814	22,290	28,003	26,556	28,601	27,857	25,404	22,853	24,647
7/ 20,425	7/ 17,766	15,184	15,693	15,571	18,338	20,131	18,802	17,385	14,853	15,392
4,691	4,929	5,270	4,981	6,356	6,030	5,595	5,814	6,015	6,031	6,633
-	-	-	160	270	163	459	465	96	109	47
-	-	3,940	1,115	1,367	1,305	1,680	2,163	1,385	1,291	1,597
579	566	420	341	439	720	736	613	523	569	978
458	505	444	451	442	550	534	547	537	550	571
251	273	205	219	226	277	247	262	224	241	250
-	-	39	50	62	46	58	67	75	83	95
207	232	200	182	154	227	229	218	238	226	226
2,107	2,512	2,899	2,537	3,786	5,818	-	9,393	8,423	-	16,483
-	-	108	485	199	210	-	229	151	-	686
-	-	2,703	1,973	3,558	4,967	-	8,963	7,993	-	15,090
-	-	89	79	29	641	-	201	279	-	707
638	1,283	989	3,314	1,958	1,682	1,552	2,306	1,063	1,377	1,070
660	586	657	685	679	667	695	722	838	735	763
645	570	639	650	662	649	679	702	816	715	740
15	16	18	35	17	18	16	20	22	20	23
-	-	114	471	608	765	700	694	810	725	837
602	1,150	1,670	720	774	803	1,016	1,124	1,357	1,492	1,223
8,017	5,585	6,967	6,678	6,648	7,041	7,463	7,823	7,609	5,846	9,140
10	22	14	12	15	17	27	25	27	27	24
-	-	16	9	17	17	20	10	15	10	12

5/ Excluding Cheese. 6/ Included in Oats up to 1952. 7/ Includes Tomatoes and All Other Fresh Vegetables.
Source: Data and material developed during the study and other available data.